JUNE
1953

fueloil & oil heat

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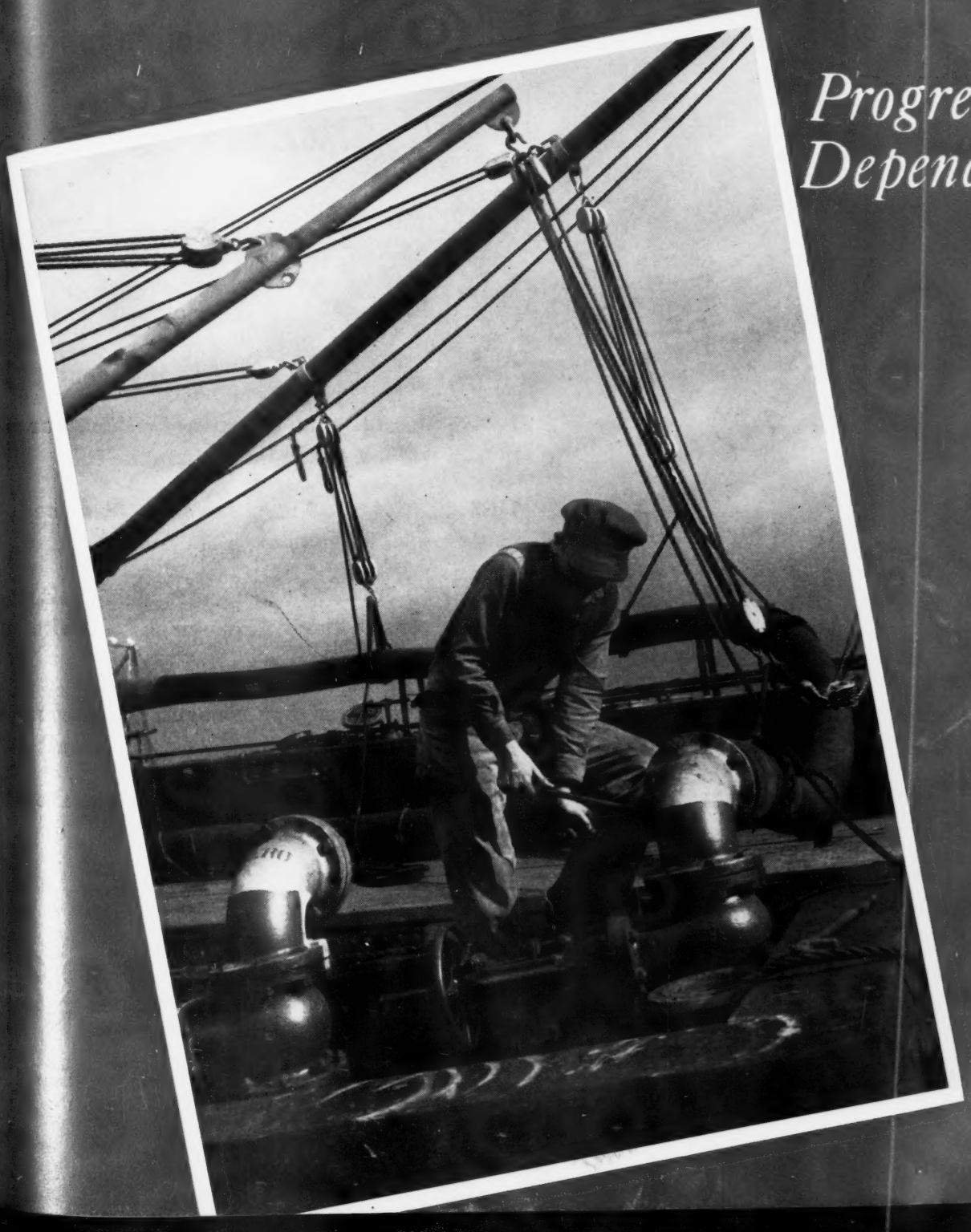
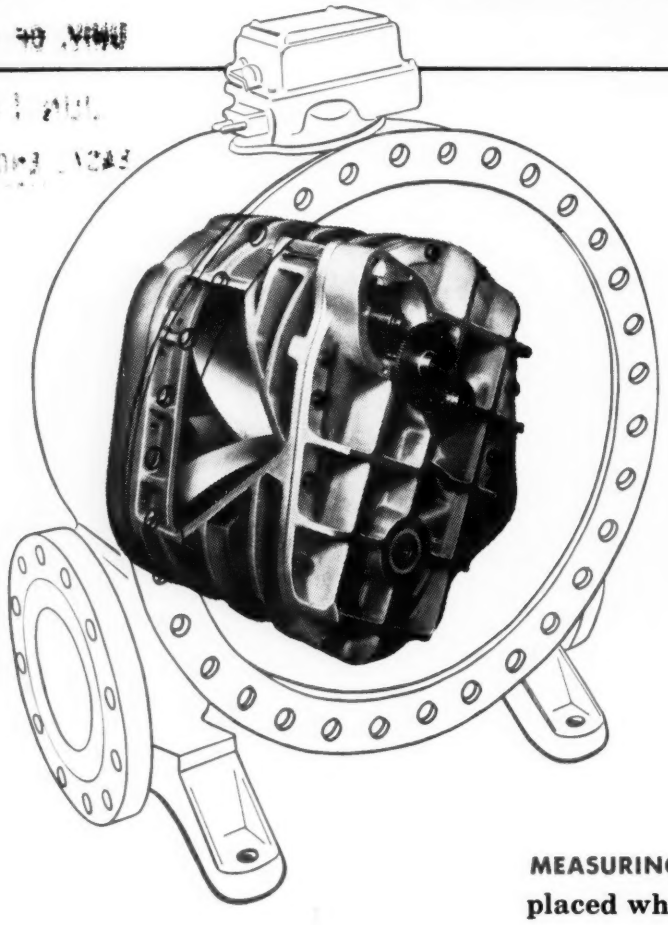
Progressive
Dependable



Double Case Construction
on ALL BRODIE *BiRotor* Meters



means

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Lowest Maintenance

Maximum Safety

Highest Dependability

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JUNE fueloil & oilheat 1953

VOLUME 12 NUMBER 6

UNIV. OF MICHIGAN
JUN 16 1953
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CONTENTS

SUBJECT	PAGE	AUTHOR
How much fueloil Storage?	49	
Showing a Profit in Service	52	JOSEPH S. MATACHINSKAS
Research helps the Dealer	55	
Mercoid Controls	58	J. W. SCHULZ
Servicing home cooling Units	63	MAURICE R. EASTIN
Boston round Table	69	
Where will Oilheating be sold? (facing)	70	
Oilheating the Dudes	71	ROBERT GRAY
COMMERCIAL - INDUSTRIAL SECTION:		
Service is not an Accommodation	74	CHARLES BURKHARDT
Boiler tube Temperatures measured	82	

NEWS

Additions to Buyer's Guide	18
Secondary oil Stocks up	20
OHI protests import Quotas	22
N. Y. State has oil Course	24
March housing Starts Up	26
Oilheating tops in St. Paul	26
40% in Indianapolis use Oil	28
Cooling installed in L. I. Homes	69
Esso Head speaks at Asbury	88
Townsend named ESPA President	88
Porter talks at IOMA Meeting	102

DEPARTMENTS

Names in the News	6
Editorial Leaks	10
Oilheating Trends	12
Government on Fuels	16
Letters	30
Everyday Snags	116
Industry Groups	122
New Products	135
Manufacturers' Activities	154
Readers' Problems	164

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Among other things . . .

If the cover picture looks like something not often encountered in the daily round of oilheating, don't be concerned . . . you may never have to go in for the activity. It's a couple of a.b. seamen hooking up to unload an Esso tanker.

The lead article on fueloil storage covers the thinking of more than a dozen fueloil men, mostly majors, and is refreshing in its candor and in its admission that you can't expect blood out of a turnip; you can't expect fueloil distributors to build up a lot of summer storage unless they are financially rewarded for doing it.

Research as practiced at the University of Illinois is due for some considerable recognition and is getting it in the page 55 story about its numerous heating studies. Lots of universities do a little along this line but none approaches Illinois for wide coverage. Some new discoveries on air-conditioning at the school are very important.

HEATING DEALERS

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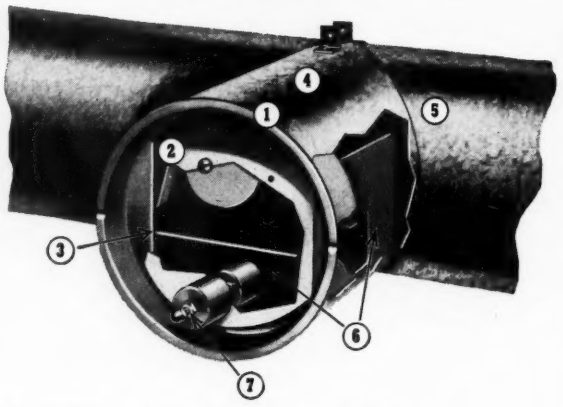
7—FACTORY ADJUSTED — Set to maintain .06" draft until instrument setting is made.



The Field Draft Control is quick, easy and simple to install. But far more important it keeps performing without requiring attention itself — no warping, sticking, clogging — and without causing extra service calls due to smoking or fuel waste. And for the customer a Field Control means maximum fuel economy. For every 1/100" of excess draft eliminated, due to Field's greater accuracy, there is up to a 1% fuel savings. Yes, you can depend on Field.

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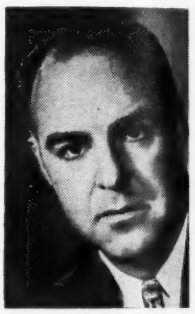
Field Controls are factory set to maintain an .06" draft until a precise, hair-line setting — possible with a Field — can be conveniently made.

Names in the News

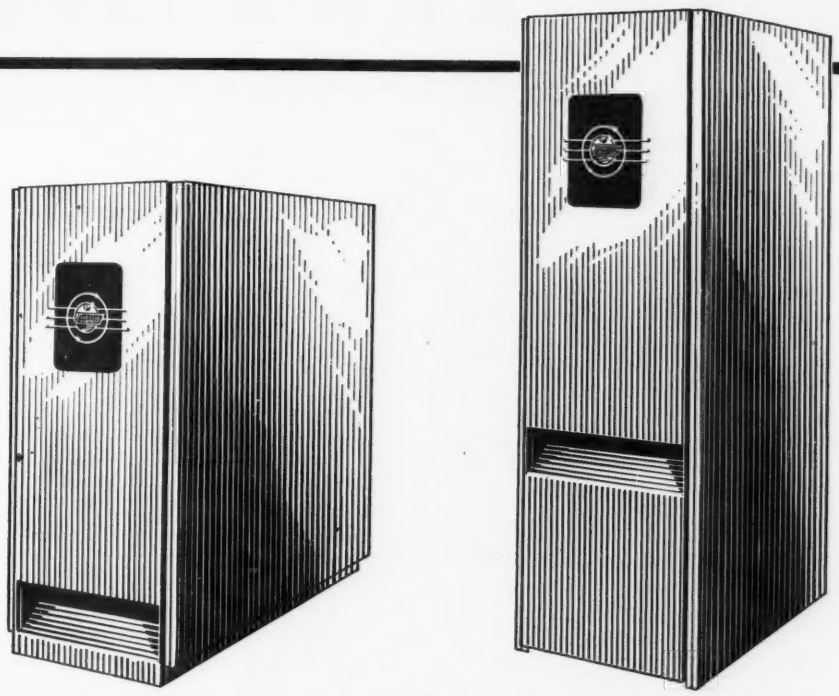
Horace E. Davenport on May 1 became president of Burns Bros., New York City fuel-oil distributor. *Martin F. Shea,* former president, was named chairman of the board and *William G. Kurtz* was re-elected executive vice - president. Other officers named: *Henry J. Meyer,* secretary-treasurer; *C. Herbert Jagels* and *James A. Cavanagh,* assistant vice-president. Burns Bros., coal and oil retailers in New York for more than 75 years, operate 16 plants and a fleet of 200 fuel trucks.



Davenport has been associated with the fuels industry for 24 years and has built a chain of retail fuel companies throughout New England. His election to the presidency of Burns Bros. will not affect his present positions as chairman of the board, The Pickering Co., century-old retail fuel concern in Salem, Mass. and vice-president in charge of New England operations, Pocahontas Fuel Co., Inc., coal producers and shippers who recently acquired the Pickering Co. Davenport will continue his Pickering and Pocahontas responsibilities.

He was Pickering's president from 1933 to 1952, during which time he also headed Union Coal and Oil Co., Kelly Coal & Oil Corp., New England Distributors, Inc., Pickering-MacFarland, Inc. and Sprague, Breed, Stevens and Newhall, all fuel distributors in Massachusetts. He was president of the Independent Oil Men's Association of New England from 1950 to 1952 and, at the same time, served on the National Petroleum Council.

New Reasons Why...



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Here are just two of the *all-new* Chrysler Airtemp family of 14 oil and gas-fired forced air furnaces. You'll find it's easier for you to sell these *all-new* furnaces — and these are the reasons:

- Features you can demonstrate to your prospects.
- Good Housekeeping Seal of Approval.
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BOILERS
FOR STEAM OR HOT WATER

BUILT TO LAST A LIFETIME
UNDER ANY CONDITIONS

¼" PLATE — ¼" wall, TUBES

Qualified for A.S.M.E. Marking

THE
WALL-FLAME
BOILER

A TIME TESTED AND FIELD PROVEN BOILER THAT FULLY DEVELOPS THE SUPERIOR QUALITIES OF THE

ROTARY BURNER
TO PROVIDE EFFICIENCIES
WELL OVER 80%

EASY —
TO GET IN THE BASEMENT
TO INSTALL
TO CLEAN & SERVICE
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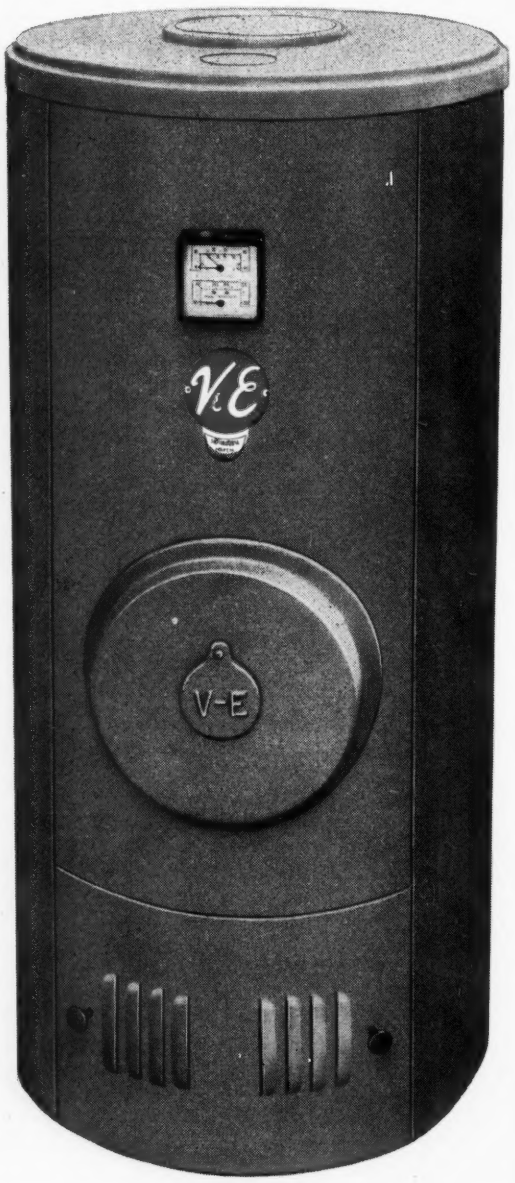

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Doherty

Moroh

Raymond S. Doherty has been named manager, National Packet sales in the heating div., The National Radiator Co., Johnstown, Pa. *Sigmond Moroh* was named manager of accessories sales in the heating division. Doherty joined National Radiator in 1950 and has since been responsible for the sales development of the company's residential, commercial and industrial steel boilers. Moroh joined the company in 1948 and has held several posts in the heating division at the general offices in Johnstown. It was also announced that *William C. Callihan* has been named assistant manager of accessories sales. He joined the purchasing department of the company in 1946 and has been in the accessories sales department since 1949.

C. B. Wilson has opened a manufacturers' agency to serve oilheating wholesalers and manufacturers in the Chicago area. Wilson, until recently sales and advertising manager of Klemm Automotive Products, has been identified with the industry for many years and is presently representing Marquart Mfg. Co., Oakland, Calif., manufacturers of Sette oil filters, and Pacific International, San Marino, Calif. "CB" is working out of his office at 7300 North Bell Ave., Chicago, under the name C. B. Wilson and Associates.

Arthur J. Raymo has been appointed works manager of its plant at Oswego, N. Y., by Fitzgibbons Boiler Co., Inc., New York 17, N. Y. He will head all phases of production and plant administration for the company.

Here It Is Gentlemen!!!

A NEW DRAFT REGULATOR

We had you in mind when we designed it!!

Here are a few facts which you will consider important . . . to justify a preference for Steinen Draft Regulators.

CALIBRATED ADJUSTMENT: Calibrations are clearly indicated so adjustments may be easily and accurately made, with positive locking at the desired setting.

SENSITIVITY: Highly responsive action in all weather conditions. The control has two heavy duty, corrosion resistant hardened bearing pins, with minimum frictional area for maximum sensitivity.

RUGGED CONSTRUCTION: Precision made from heavy materials for long, accurate and trouble-free service.

ENGINEERED: For maximum heating efficiency in any installation.

SUPERIOR PERFORMANCE: To meet your most exacting requirements.

STEINEN TRADE MARK

See this NEW Steinen product, Booth 104, at the OHI Show, Boston, Mass.

Write for further information to Accessories Division.

WM. STEINEN MFG. CO., INC.

ESTABLISHED 1907

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DRAFT REGULATORS — NOZZLES — NOZZLE KITS — ADAPTERS — FLAME MIRRORS — AIR BANDS

Editorial Leaks

THE OIL INDUSTRY, topside, has a dilemma. It's being discussed in all the best circles. The Defense Department in Washington has calculated that if we should get into another full-scale world war, military needs would take 40% of our petroleum production. They know that you can't take that big a slice out of civilian uses without creating exceptional hardship.

As a result they are insisting on the oil industry building up a very substantial surplus capacity to be kept under wraps until the armed forces need it. The alternative is a threat that the Government will build the extra capacity, which of course would be anathema to all rugged individualists.

The industry has now provided about a million barrels a day of spare, or unused capacity. Washington thinks two million would be better. With every form of economic cooperation frowned on by Government lawyers, the only result of such large standby capacity would be a very unhappy market, pricewise.

In the fall of 1950 Chester Smith of Jersey Standard proposed that the best solution to this pressure which he could see down the road would be for all elements of the oil industry to promote the expansion of oilheating.

In that way this surplus capacity would not stand idle as a serious threat to the market and in the event of big war oilheating could be moderately cut by rationing. Makes sense to us.

❖

A TYPICAL EXAMPLE of what happens when oil is too plentiful recently occurred in the Spraberry field of West Texas. Often touted as the seven-day wonder among new fields, the Texas Railroad Commission has now forced it to shut down.

The excuse, logical enough, was that the field is flaring 220 million cu. ft. of natural gas a day while utilizing only 60 million. The reason for the waste is not hard to visualize. The price of gas at the well has been too cheap for anyone to run lines out to that field. With gas prices on the rise that will be corrected in time. But the real significance of Spraberry is that a Government agency can see so much oil around that it feels free to scuttle the output of 2,000 oil wells, willy-nilly.

❖

LAST ISSUE we wrote about the retirement of Joe Mulvey of Atlantic, the dean of fueloil department managers. Now we have a copy of the December 1924 issue of "Engineers and Engineering" in which Joe had a paper on fueloil.

Apparently in those days women were just coming into their own, for Joe said in the article, "It is just as important and fair to have labor saving devices in the home as in the factory or office." Today you could safely say that only in Spain or Zanzibar.

Another quote: "When a prospective purchaser of oilburning equipment for his home considers the question from all angles, he inquires about the future oil supply and in this connection I do not think there is any cause for apprehension for some years to come." Brave statement for a major company man in those years.

❖

IT WAS ONE OF those large Long Island estates, one of the few that can still afford enough servants to stay open. Something about the oilheating was not right and local servicemen had not been able to fix it to suit the owner.

He instructed the butler to make a search for a real oilburning engineer, a topflight expert. He was not hard to find after some inquiry and the job was studied and made good as new.

Some days later the butler phoned the mastermind in considerable agitation. "What are you trying to do," he complained, "ruin my reputation? The boss said to get a real expert and now you send me a bill for $150. I tore it up before he could see it and think I brought in a handy man. Send me another one for $350 and he'll know you're reliable."

Names, dates and places will not be supplied upon application but the man who told us has appeared dependable during the 24 years we've known him.

❖

SOMETIMES IT'S NICE to recognize the fact that your industry is built on a good solid foundation. When you stop to think of it, oilheating has a mighty firm base.

If you haven't seen it, there's a plush publication called "The Lamp" put out by Standard of Jersey for distribution not so much to the industry as to the Nation's "thought leaders."

Its March issue caried a very interesting world map showing in six world areas how oil is used. In this presentation the barrel is split not into products such as gasoline, kerosene, etc., but rather into actual uses such as passenger cars, all other transportation, heating use, industrial, etc.

In the United States "heating use" gets 17% of total oil output. Visualize the vast ramifications of the petroleum industry, its many billions of investment, its 120 billion gallon sales last year, its army of high grade men and women. Then recognize that our crowd is responsible for the development of more than one-sixth of that impressive array. And it isn't a one-time transaction . . . it goes on for many years into the future, and like the rolling snowball always gets bigger.

It's enough to give a man a fresh dose of confidence in what we as an industry amount to . . . where we stand.

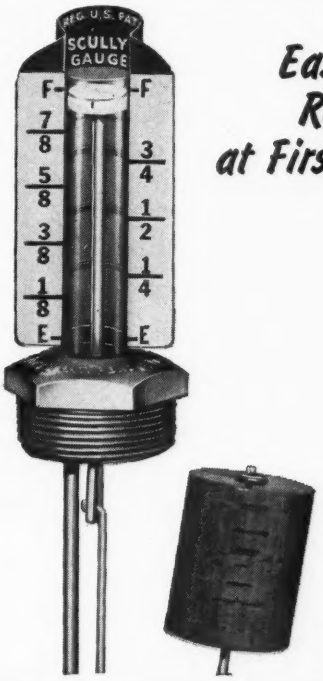
And it means something to us at FUELOIL & OIL HEAT. There are many petroleum magazines, many general heating magazines. But to be the strong publication serving an industry so solidly grounded not only in the great oil industry but also in millions of American homes, and serving exclusively the important heating oil segment of the barrel . . . it gives us confidence too when we think of it.

Bob Gray

"TOPS in its Class!"

SCULLY® GAUGE

UNDERWRITERS' APPROVED



Easy to Read at First Glance

Big, black figures readable from even ten feet away. Gauge face adjustable to the position most convenient for reading. Accurate and dependable in operation.

Jam-proof lever arm actuated by oil resistant cork float. Leak-proof, odor-proof housing. "Button-Lift" arm control for simple installation even in partially filled tank.

"Winning Combination"

VENTALARM® GAUGE

UNDERWRITERS' APPROVED

for New Burner Installations

With this **one unit**, you provide all the benefits of the one and only VENTALARM Whistling Tank Fill Signal plus SCULLY GAUGE, the accurate dependable gauge that everyone finds so easy to read.

You install one item instead of three. Goes on the tank as an integral part of the vent pipe. No reducing bushing needed. "Button-Lift" arm control makes installation easy even in partially filled tank..

MODELS

GA for 2" opening

GB for 1½" opening

Specify tank depth: 24", 26", 27", 28", 37", 42", 44", 47"

"BUTTON-LIFT" INSTALLATION

for both products

Lifting the button-indicator draws cork arm up close to main shaft for easy installation even in partly filled tanks.

"FREE" NAME CARD"

with every SCULLY GAUGE and VENTALARM GAUGE

Slips into place on top of gauge as a convenient service reference for the customer.

SIZES

VG-A, 2" x 1¼"

VG-B, 1½" x 1¼"

For 275 gal. cellar tanks with depths of 24", 26", 27", 37", 42", 44" and 47". Specify tank depth and tank opening.

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Scully Products are manufactured under U.S. and Foreign Patents and Patents Pending.

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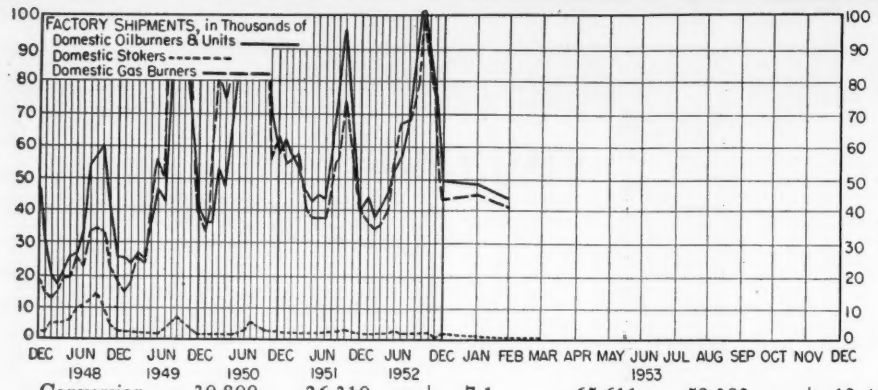

FACTORY SHIPMENTS, in Thousands of
Domestic Oilburners & Units
Domestic Stokers
Domestic Gas Burners
DEC JUN DEC JUN DEC JUN DEC JUN DEC JUN DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1948 1949 1950 1951 1952 1953

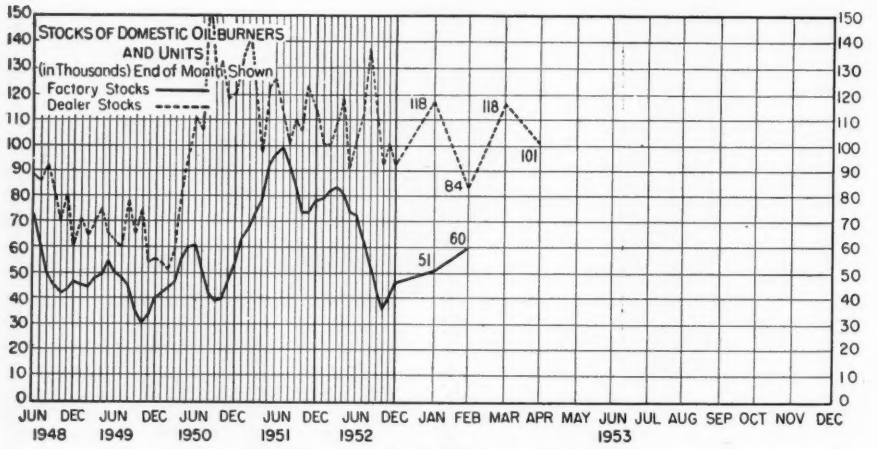
Conversion	30,800	26,310	+ 7.1	65,611	58,382	+ 12.4
Boiler Units	4,023	2,310	+ 74.2	7,884	5,382	+ 48.7
Furnace Units	9,509	8,667	+ 9.8	19,300	19,162	+ 0.7
All Domestic	44,332	37,287	+ 19.1	92,795	82,926	+ 11.9
Commercial	3,399	2,492	+ 36.4	6,515	5,006	+ 30.1
Total	47,731	39,779	+ 20.0	99,310	87,932	+ 12.9

Shipments of Oilburners and Units

(Including Exports)

Adjusted to include manufacturers other than the 145 reporting to Census Bureau, FUELOIL & OIL HEAT's estimates of shipments are:

	FEBRUARY			TWO MONTHS		
	1953	*1952*	*Percent Change*	*1953*	*1952*	*Percent Change*


STOCKS OF DOMESTIC OILBURNERS AND UNITS
(in Thousands) End of Month Shown
Factory Stocks
Dealer Stocks
118
118
101
84
60
51
JUN DEC JUN DEC JUN DEC JUN DEC JUN DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1948 1949 1950 1951 1952 1953

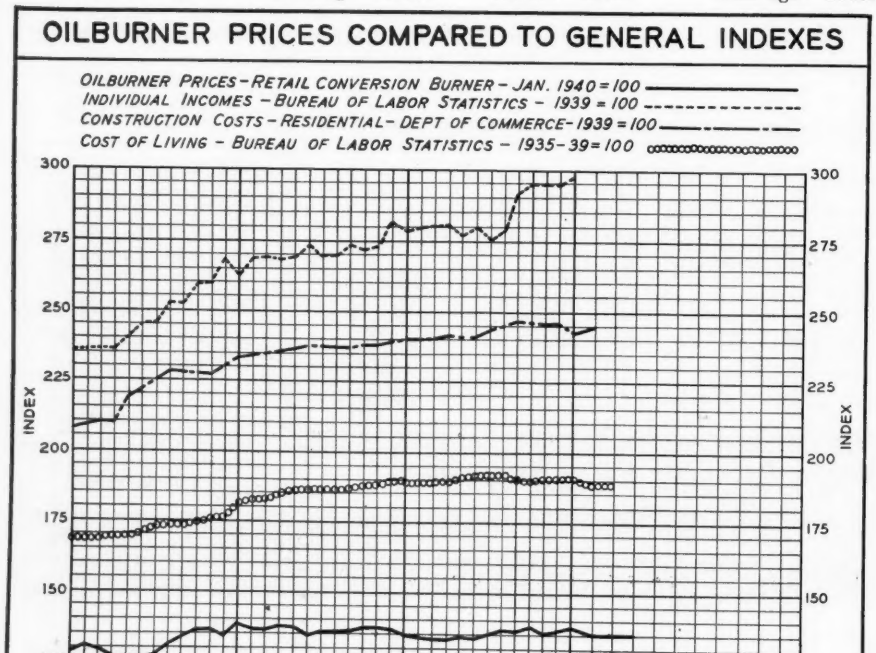
March Minimum Retail Prices: Key Dealers

	CONVERSION BURNERS	BOILER-BURNERS	FURNACE-BURNERS
April Aver.	$318	$705	$638
March Aver.	320	709	641

Price Index: Conversion Burners: January 1940 is 100%

	WHOLESALE				RETAIL			
April	143.4	Six months ago	145.5	April	135.0	Six months ago	136.5
March	143.0	Year ago	138.8	March	135.1	Year ago	133.6

OILBURNER PRICES COMPARED TO GENERAL INDEXES


OILBURNER PRICES - RETAIL CONVERSION BURNER - JAN. 1940 = 100
INDIVIDUAL INCOMES - BUREAU OF LABOR STATISTICS - 1939 = 100
CONSTRUCTION COSTS - RESIDENTIAL - DEPT OF COMMERCE - 1939 = 100
COST OF LIVING - BUREAU OF LABOR STATISTICS - 1935-39 = 100
INDEX
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1950 1951 1952
MAR. MAY JUL SEP NOV
1953

Oilheating Trends

APRIL INSTALLATIONS of domestic oilburners and units are estimated at 46,526, or about 3% above the 45,175 for the same month a year ago. These installations were divided: New homes, 15,696; replacement of old oilburners, 6,525; conversions from other fuels, 24,305.

The total for the first four months of the year was 143,560, compared with 154,759, a decline of 7%. It is significant that March and April each were slightly above last year, while January and February were below 1952, which once had been abnormally high in relation to the year as a whole.

BURNER STOCKS: Domestic oilburners and units in dealer warehouses on May 1 were: 101,489 compared with an estimated 118,550 the previous month and 118,966 on May 1 last year. The current stocks were divided: Conversion oilburners, 59,925; boiler-burner units, 16,479; furnace burner units, 25,085.

Factory stocks on February 28th, latest available data, were 59,795. This is much below the corresponding date of 1952 when they were 83,252.

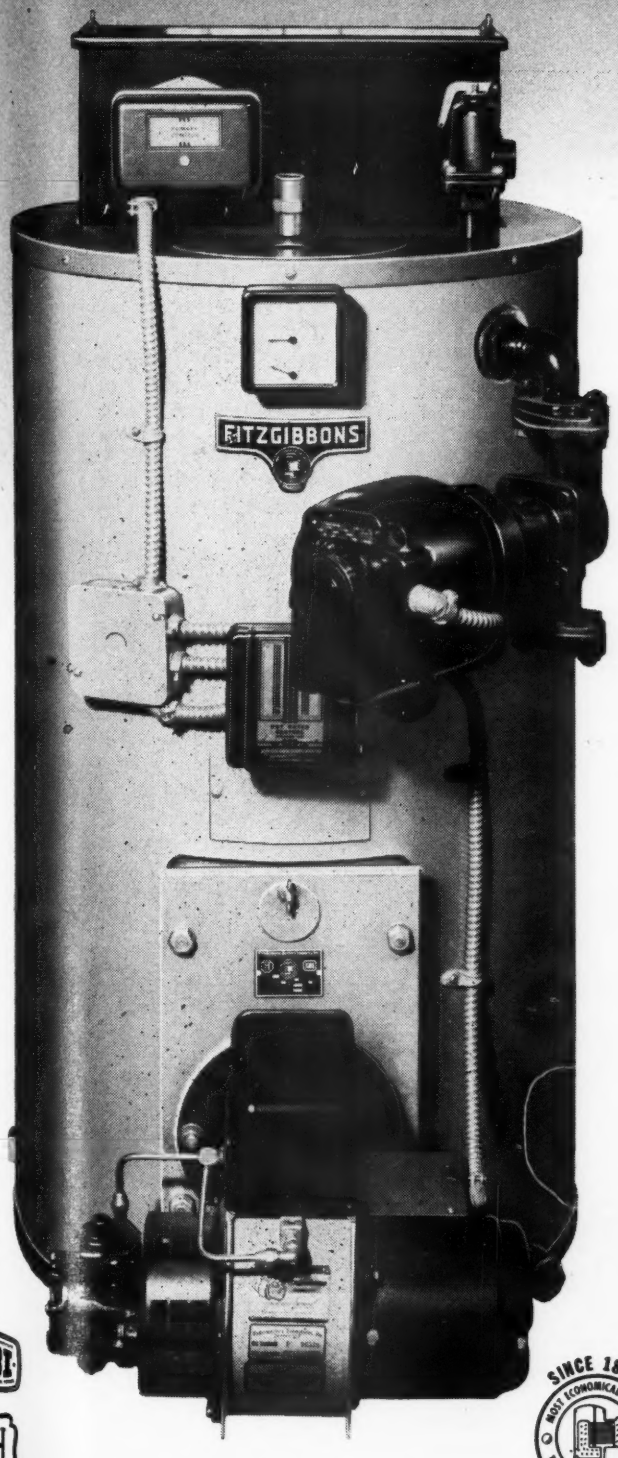
TANK STOCKS: On May 1 dealers were holding approximately 92,117 consumer oil storage tanks or virtually the same as the previous month but much below the same date of the previous year when they were 131,138. These tank stocks should be getting built up in view of the threat of another steel strike in early summer. By sizes the May 1 tank stocks were: 220-275 gallon, 82,222; 550-675 gallon, 6,411; 1,000 gallons or larger, 3,484.

During April the average price for the 275 gallon size dropped another $1 to $34. By sections the average price was: New England, $31; Middle Atlantic, $33; Midwest, $32, and Pacific Northwest, $46.

SERVICE MANPOWER: Slightly over four-fifths of the reporting dealers say that in their markets they are still in serious need of good men. There is quite a geographic variation. In New England 55% of the dealers need more men; in the Mid-Atlantic states it's 71%; in the Midwest it's 67%; and in the Pacific Northwest virtually none

NOW! Fitzgibbons quality in a pre-assembled unit!

THE FITZGIBBONS № 770 BOILER-BURNER UNIT



DESIGNED RIGHT—For all types of hot water heating systems in small homes. The № 770 Boiler-Burner Unit is pre-assembled, Underwriter-approved wired, protectively cartoned and ready for hook-up with minimum effort.

BUILT RIGHT—Fitzgibbons quality all the way—A.S.M.E. Code steel construction, hydrostatically tested and S.B.I. Rated and Approved. The № 770 assures quick, efficient heat, easiest servicing and year 'round domestic hot water with the Fitzgibbons TANK-SAVER®, capacity 3 gallons per minute.

PRICED RIGHT—The great demand for Fitzgibbons to market such a unit at a competitive price has brought to you "The Best in Steel Boiler Heat" at a lower price than ever before in our history.

This is the Fitzgibbons Boiler-Burner Unit for small homes you have wanted for your customers. Get the full details. Mail the coupon today.

MORE FOR YOUR DOLLARS IN ONE PACKAGE...

Fitzgibbons № 770 Boiler
Jacketed and Insulated
Fitzgibbons Oil Burner
Combustion Chamber
Primary Control
Operating Control
Underwriter-approved wiring
Room Thermostat
Fitzgibbons TANKSAVER®
Flow Regulator
Relief Valve
Thermometer
—Altitude Gauge
Circulator
Thermostatic Control
Automatic Air Vent
Compression Tank
Flow Check Valve
Pressure Reducing Valve
Draft Regulator
Flue — Gas Retarders
Drain Cock

SINCE 1886 MOST ECONOMICAL IN FUEL THE FITZGIBBONS BOILER 1886

Fitzgibbons Boiler Company, Inc.
101 Park Avenue, New York 17, N. Y.

Please send me complete details on the new Fitzgibbons № 770 Boiler-Burner Unit.

Name_____

Address_____

City_____ Zone_____ State_____

FO-6

of the dealers reported a shortage. The cooperating companies were then asked how many good men they would employ if they were available now. For the country as a whole the need seems to be approximately 3,573 additional men. By sections of the country we find that New England needs about 642, the Mid-Atlantic states need 1,645, the Midwest needs 1,517 and the Pacific Northwest needs 69. Considering that there are around 18,000 servicemen employed in the industry, not including installation men, the dealers are telling us that they need 20% more. That is a serious situation for the moment at least.

We asked the reporting dealers what they currently pay for good service mechanics and then checked this against their need for men. There is a slight point here but not very significant. Those companies that report a shortage and state how many men they need are paying an average of $1.89 an hour. Of course some of them run considerably higher. Those companies that report no shortage of men are paying an average of $1.97 an hour. Thus while there is a small difference it is clear that the wage rate in itself is not responsible for the shortage.

Some companies guarantee their servicemen an annual wage, in fact 35% of our reporting companies do this. These guarantees range all the way from $3,000 to $5,700 and they average $4,044. This is equivalent to guaranteeing a 40 hour week the year round at an hourly rate of $1.94. A few companies that do not guarantee a specific dollar income do guarantee 40 hours of work the year around.

SALES OUTLOOK: As of May 1 the dealers reporting from all sections of the country estimate that their sales for this full year will be 2.6% above 1952. This is only slightly different from the estimate of a larger group for our annual study recorded in the January issue. That group was estimating that they would be up 3.7% over 1952. This shows that while sales in the first four months are down the dealers consider this a temporary condition. There was considerable geographic difference in the degree of optimism. For example New England expects this year to be 4% below last year; the Midwest expects a drop of 1%; the Pacific Northwest expects sales down 20% while the Mid-Atlantic region the largest in the country expects an increase of 12%.

Dealers are planning greater efforts this year in the way of sales promotion. Nearly ¾ of those reporting say that they will spend more to get sales this year than they did last year. One reason seems to be that they believe gas competition will be tougher. Six out of each seven dealers expects that gas

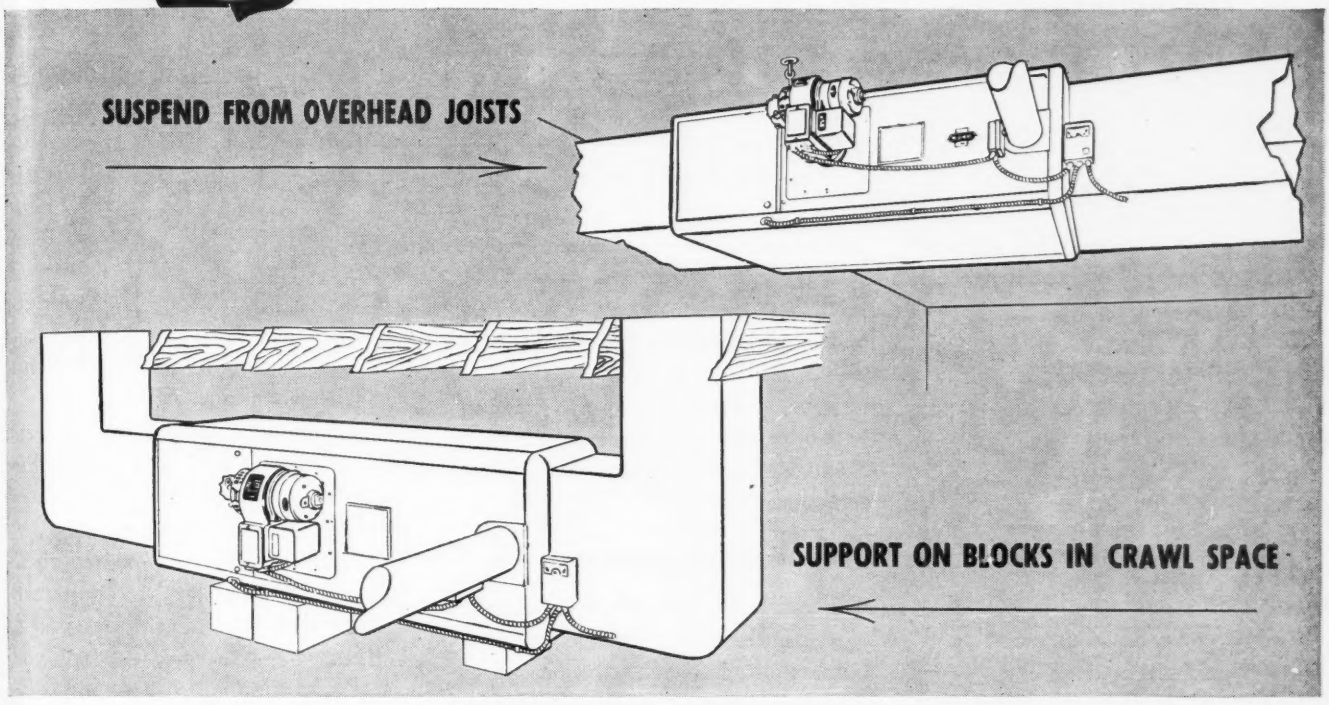
(Please turn to page 170)

Oilburner* and Building Permits

OILBURNERS April 1953	OILBURNERS April 1952	OILBURNERS 4 MONTHS 1953	OILBURNERS 4 MONTHS 1952		DWELLINGS April 1953	DWELLINGS April 1952	DWELLINGS 4 MONTHS 1953	DWELLINGS 4 MONTHS 1952
23	50	79	111	Albany, N. Y.	..	..	..	..
79	136	409	539	Baltimore, Md.	371	317	1595	1450
..	..	..	..	Binghamton, N. Y.	20	11	44	36
..	..	..	..	Bloomfield, N. J.	47	7	100	21
..	..	..	..	Boston, Mass.	54	37	119	128
58	49	331	235	Bridgeport, Conn.	..	..	..	..
..	..	..	..	Buffalo, N. Y.	57	49	191	190
10	76	58	262	Columbus, Ohio	..	..	..	..
..	..	..	..	Des Moines, Iowa	164	83	882	210
..	493	..	2852	Detroit, Mich.	389	345	1094	1446
13	28	86	105	Elizabeth, N. J.	4	12	16	24
25	24	110	134	Freeport, N. Y.	..	..	..	..
..	..	..	..	Greenwich, Conn.	24	33	..	103
..	..	..	..	Hackensack, N. J.	5	16	25	45
..	94	..	389	Hartford, Conn.	..	..	..	..
..	..	..	..	Hudson County, N. J.	..	..	..	..
34	57	94	100	Irvington, N. J.	2	5	14	10
..	..	..	..	Lynn, Mass.	17	32	50	70
..	28	..	145	Meriden, Conn.	..	..	..	..
..	345	..	1006	Milwaukee, Wisc.	277	265	704	795
35	62	170	445	Minneapolis, Minn.	168	137	360	300
17	23	51	71	Montclair, N. J.	..	..	..	..
..	..	..	..	Morristown, N. J.	19	13	32	27
22	18	84	73	Mt. Vernon, N. Y.	..	..	..	..
191	176	456	445	Newark, N. J.	..	..	..	..
37	101	254	506	New Bedford, Mass.	..	..	..	..
23	41	101	253	New Haven, Conn.	..	..	..	..
..	..	..	..	New Orleans, La.	..	..	..	..
..	55	..	118	New Rochelle, N. Y.	59	23	178	87
..	7803	..	29567	New York City (total)	..	..	..	..
6664	7329	..	27493	Brooklyn-Queens	..	..	..	..
456	474	..	2074	Manhattan, Bronx, Rchd	..	..	..	..
55	59	..	197	Norfolk, Va.	90	186	271	604
..	..	..	..	Oakland, Calif.	..	..	..	..
24	27	148	179	Omaha, Nebr.	114	99	268	295
12	15	38	47	Orange, N. J.	1	2	11	5
15	23	47	66	Passaic, N. J.	..	..	..	..
56	71	150	149	Paterson, N. J.	12	35	54	68
368	595	..	2296	Philadelphia, Pa.	..	..	..	..
..	..	..	..	Plainfield, N. J.	22	19	53	62
36	16	144	94	Portland, Me.	20	23	40	41
319	..	..	..	Portland, Oreg.	229	161	764	472
21	13	59	48	Poughkeepsie, N. Y.	..	..	..	..
49	106	..	408	Providence, R. I.	20	23	64	56
..	..	..	..	Reading, Pa.	2	2	25	18
22	29	116	171	Richmond, Va.	44	99	214	231
33	32	114	149	Roanoke, Va.	..	..	..	..
184	207	662	749	Rochester, N. Y.	..	..	..	..
10	12	61	55	Rockville Center, N. Y.	13	2	34	20
21	16	93	106	Salem, Mass.	10	11	34	19
85	110	..	511	St. Louis, Mo.	29	54	113	149
21	33	103	153	St. Paul, Minn.	152	141	367	376
38	29	89	167	Schenectady, N. Y.	..	..	..	..
..	..	..	..	Seattle, Wash.	202	189	579	676
..	..	..	..	Springfield, Mass.	66	76	..	307
43	83	162	244	Stamford, Conn.	..	..	..	..
..	5	..	29	Syracuse, N. Y.	..	57	..	140
..	..	..	..	Trenton, N. J.	..	28	..	49
..	..	..	..	Utica, N. Y.	15	21	33	40
57	103	213	360	Washington, D. C.	..	..	..	..
..	..	..	..	West Orange, N. J.	31	25	97	103
16	20	66	68	White Plains, N. Y.	19	6	63	43
46	64	219	201	Wilmington, Dela.	20	10	47	44
80	84	367	434	Worcester, Mass.	..	..	..	..
43	33	141	206	Yonkers, N. Y.	..	..	..	..
1804	2479	5113	6681	Totals	2511	2304	7831	7366
	—27.2		—23.5	*Percent Change*	+9.0		+6.3	

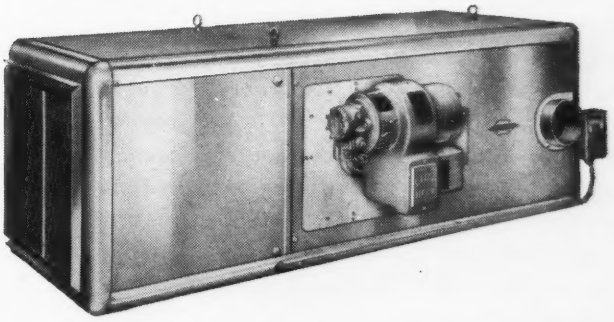
*Permits are not total sales in each market since none are reported from suburban areas, which normally account for 20% to 60% of total sales in each market; nor are they an accurate index where enforcement is lax. Rightly used, however, they are a useful working index.

There's real money to be made with this new space-saver, oil-fired, forced warm air furnace!



New DELCO-HEAT horizontal furnace offers big sales opportunity

Now Delco-Heat Dealers can set their sights on a brand new money-making market. Here's the answer to where to put the heating plant . . . as homes get more and more compact and basements, garages, and extra rooms are cut out of plans. This new horizontal unit is engineered for installation in crawl space or from overhead joists. It's designed for perfect comfort with Delco-built coordinated controls, high-pressure oil burner and stainless steel Quik-Action Heat Transmitter. Shipped assembled for easy installation. Capacity 75,000 btu/hour output. Only 72⅛" long by 25" square. It's another example of how General Motors and Delco-Heat team up to give you the most valuable franchise in the industry. For information about new territories available, write Delco Appliance Division, General Motors Corp., Dept. FO, Rochester 1, N. Y. In Canada, Delco-Heat, Toronto 13, Ontario.



Delco offers a complete line of automatic oil- and gas-fired conversion burners, Conditionair forced warm air furnaces, boilers and electric water systems.

For a good deal-

DEAL WITH DELCO

GENERAL MOTORS DELCO-HEAT

General Motors Engineering
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...your keys to Sales Success

fueloil & oilheat

Government Influences on Fuels

by
Milburn Petty

WASHINGTON — Mid-western cities seeking lower consumer prices for natural gas have won the first round in their court fight with the Federal Power Commission.

Their petitions to roll back gas prices paid to Phillips Petroleum Co. were denied by the FPC on grounds that it had no authority over sales by independent producers and gatherers to the interstate pipelines.

But, the circuit court here has overturned the FPC's decision in the Phillips Case and the issue is again headed for the Supreme Court.

If the high court upholds the lower court, the only way for producers and gatherers to escape federal control of their sales to the gas companies would be enactment of legislation similar to the Kerr Gas Bill vetoed in 1950 by President Truman. This bill would have specifically barred the FPC from jurisdiction over such sales.

But such legislation would face a rough road through Congress now. And the Republicans would not relish another bitter battle, with the 1954 congressional elections in the offing.

Tobey Hails Gas Case Ruling

Senator Tobey, Rep., of New Hampshire, a bitter foe of the Kerr Bill, is now the chairman of the Senate Commerce Committee that would consider such legislation.

Tobey hailed the court's decision as a "step in the direction of righting the great wrong perpetrated by the FPC when it ran out on its responsibility to the general public in the infamous Phillips Case."

When the FPC declined jurisdiction in this case, "it abandoned the consuming public to the not-so-tender mercies of monopolistic pricing," Tobey continued.

He said this was demonstrated by recent rises in natural gas prices. Prior to World War II, gas was sold freely for 2¢ per thousand cubic feet. Today, he added, the average price runs from 6¢ to 10¢. And during the past year or so, many contracts have been written at a rate of 15¢, with a few at 20¢ in recent months.

"I cannot believe that costs of production have risen to such a degree as to justify these radically increased prices.

"Nevertheless, this is what tends to happen when public utility regulation is allowed to break down," he declared.

He said the court's decision "vindicated" the dissenting opinion of T. C. Buchanan, then chairman of the FPC, in the 4-to-1 decision in the Phillips Case.

Tobey's opposition was credited with blocking appointment of a gas-producing state official as Buchanan's replacement.

Gas Pipeline Expansion Seen

Now that line pipe is relatively more plentiful and all restrictions have been removed from expansion of gas markets, the Petroleum Administration for Defense expects that about 2,000,000 tons of pipe will be used in gas pipeline projects this year or about 18% more than in 1952.

Gas participation in the defense mobilization program, from here on, will be discussed at the meeting of the Gas Industry Advisory Council called for June 23.

Fueloil Dealer Groups Indicted

Attorney General Brownell has announced indictments against three local groups of fueloil dealers in Massachusetts, and 22 individual members including George E. Gagnon, Chelmsford, president of the three dealer groups.

The associations, according to the DJ's announcement, were Lawrence Fuel Oil Institute, Inc.; the Lowell Fuel Oil Dealer Associates, Inc.; and the Haverhill Fuel Oil Dealers Association. Members were described as "bulk plant dealers" and "tank truck dealers."

The announcement said that charges included "conspirary to fix uniform and identical prices" for sale of fueloil to truck dealers and consumers, exclude from membership any dealer not maintaining such prices, and refuse to sell or buy from any non-member.

Anti-Import Bill Doomed

It now seems highly unlikely that any legislation to restrict oil imports will be enacted at this session.

The coal producers have made their bid for the Simpson Bill which would cut residual fuel imports to 20% of the current level. And the Independent Petroleum Ass'n of America has pressed for a 10% quota on all oil imports.

But the opposition of President Eisenhower, and his leaders in Congress, has been too strong. The bill seems dead.

As a sop to the anti-import groups, Ike is setting up a 11-member commission that will study foreign trade and its effect on domestic industries.

Meanwhile, the proposal of independent refiners for a "practical" voluntary plan to limit imported oil to a "reasonable" share of domestic demand is gaining support among those who believe the import controversy can—and should—be settled without legislative restrictions.

The refiners propose that Congress declare that imports should "supplement but not supplant" domestic oil and the President be charged with carrying out this policy by all appropriate means including voluntary agreements with antitrust law clearance.

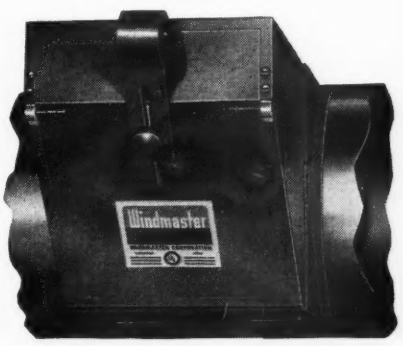
Jobbers Hit Anti-Import Bill

Approximately 75 witnesses testified on the Simpson Bill including many who said it would ruin East Coast fueloil marketers.

Domestic refiners could not meet demand for residual, it was said. New England, for example, depends on imports for 64% of its requirements. And many consumers could not shift to coal.

Coal-carrying railroads bemoaned the inroads of imported oil on coal's markets but omitted mention of another factor — dieselization. It was pointed out that in the six years since the war, railroad use of coal declined from 113 to 42 million tons.

Let it Blow this fall Windmaster's on the job



If you aren't already using Windmaster Draft Controls to reduce unprofitable service calls this Fall and Winter, ask your wholesaler about these important Windmaster performance advantages. Or, write direct for latest literature and prices.

What a relief to know that Windmaster is *already* on the job working for you when October winds blow! It's the serviceman's friend for cutting down on those unprofitable service calls and "problem" installations. Here are a few of the reasons why:

MORE RELIEF OPENING GIVES EXTRA PROTECTION — The square vane of Windmaster gives more free area. This means better effectiveness in relieving excessive draft and greatly improved burner performance regardless of draft conditions.

ANGULAR MOUNTED VANE FOR FASTER RESPONSES — Here's the answer to pesky pulsating jobs. With half the distance to travel, Windmaster's 45° angular mounted vane "arrives" quicker . . . gives more steady control of draft without lag-time or nervous quiver.

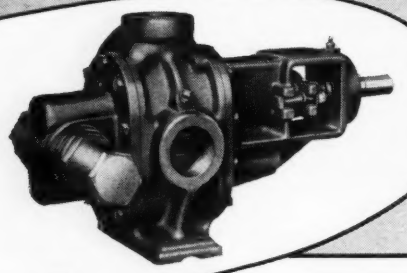
PERMANENTLY *SILENT* "JEWELED MOVEMENT" — This is the cure for many common draft control complaints and headaches. Windmaster's vane rides on silent bearings of molded DuPont nylon that outwear steel, are free from friction, immune to corrosion and unaffected by temperature extremes.

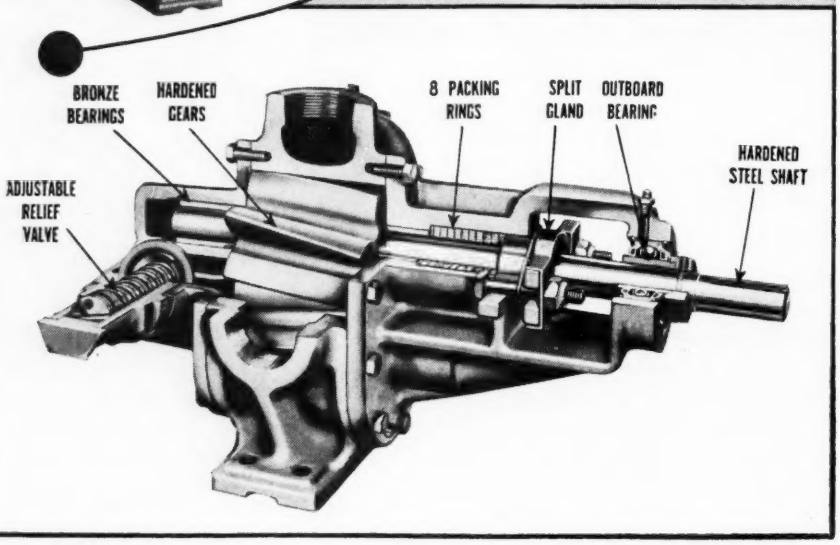
Windmaster Corporation
P. O. Box 776 • Columbus 16, Ohio

Windmaster Draft Control

Windmaster Corporation

"Take a Look Under the Hood" of this ROPER





See Why

THE "HIDDEN VALUES" IN THIS CUT-AWAY ASSURE ROPER DEPENDABILITY

1. Adjustable Relief Valve permits closing discharge without stopping pump . . . eliminates outside piping. Adjustable from range of 20 to 60 P.S.I.
2. Bronze Bearings are self-lubricating. 16 square inches of bearing surface . . . ample size for long service life.
3. Hardened Helical Gears accurately machined for perfect meshing and friction reduction. Operate smoothly in axial hydraulic balance.
4. Deep Packing Box has 8 preformed split-ring packings. Reduces wear . . . assures long service life.
5. Split Packing Gland easily repacked by removal of two bolts. Unnecessary to disconnect piping or drive.
6. Outboard Bearing built on pump protects pumping gears and inner bearings.
7. Hardened Steel Shaft is full diameter, heat treated and hardened to withstand rugged usage.

When buying rolling stock for your fleet, it's only natural to look under the hood. That's how it should be with pump selection — to know first-hand the amount of quality and value you're getting for your investment. So, take a good look at the cutaway view of the Roper Series 3600 Pump and see the built-in features that add up to endurance, performance, and long service life. There's a dependable Roper for your purpose . . . sizes 40 to 300 G.P.M. — pressures to 60 P.S.I.

ROPER Rotary Pumps

GEO. D. ROPER CORPORATION
766 BLACKHAWK PARK AVENUE, ROCKFORD, ILLINOIS

Additions, Corrections for Buyer's Guide, Directory

THE FOLLOWING ADDITIONS and corrections should be made in the Buyer's Guide and Industry Directory which appeared as a special section of the April 1953 issue.

Under "Part I. Listed by types of equipment," these companies' products were unintentionally omitted or listed improperly:

American Sand-Banum Co., New York 20, N. Y.: *Compounds & Chemicals:* Fueloil Treatment.

Cleaver-Brooks Co., Milwaukee 12, Wisc.: *Oilburners, Commercial:* Combination Oil-Gas Burners; High Pressure, Gun; Low Pressure, Gun.

Green Fire Brick Co., A. P.: *Refractories:* Castable; cement; plastic.

Klemm Automotive Products Co., Chicago 47, Ill.: *Filters, Strainers:* Oil, ceramic element.

Kopp Nozzle, Maplewood, N. J.: *Nozzles:* Atomizing light oil.

Perfection Stove Co., Cleveland 4, Ohio: *Ranges, oilfired:* Domestic, wick burner. *Space Heaters, Oilfired:* Circulating, Pot Burner, Forced Air; Circulating, Pot Burner, Gravity Air; Radiant, Pot Burner. *Unit Heaters:* Direct, oilfired. *Water Heaters:* Direct, Oilfired, Sidearm; Storage, Direct, Pot Burner.

Pullman Vacuum Cleaner Corp., Boston 19, Mass.: *Vacuum Cleaners:* Boilers & Furnaces; Tools & Accessories.

Sheffler-Gross Co., Philadelphia, Pa.: *Filters, Strainers:* Strainers #5, #6 Oil; Strainers, Bulk Plant.

Sparkler Mfg. Co., Mundelein, Ill.: *Filters, Strainers:* Delete under Oil, Throw-away, add under Oil, Cartridge.

Webster Electric Co., Racine, Wisc.: *Pumps, Oilburner;* Oil, Lift. *Valves:* Oil, Solenoid; Magnetic.

Wells Mfg. Co., San Francisco 3, Calif.: *Preheaters, Oil:* Electric.

Under "Part II. Companies listed alphabetically," those companies whose names unintentionally omitted were:

American Sand-Banum Co., 9 Rockefeller Plaza, New York 20, N. Y.

Klemm Automotive Prods. Co., 1718 N. Damen Ave., Chicago 47, Ill.

Pullman Vacuum Cleaner Corp.,

If ever a truck was designed with the driver in mind...

this new Ford Truck is it! New "DRIVERIZED" Cab cuts driver fatigue. New easy handling saves work and time getting around in tight spots. These and many other TIME-SAVING features in the all-new Ford Trucks help get jobs done fast.

Time is money! Today's truck owners know it. Ford Truck engineers know it. That's why TIME-SAVING was a major goal in designing the completely new Ford Trucks for 1953. With scores of new TIME-SAVING features, the new Ford Trucks are made-to-order for your work.

New "DRIVERIZED" Cabs provide living room comfort, cut driver fatigue. They help save time by making driving easier and more efficient in many ways:

Better visibility for instance. Although the new curved one-piece windshield is the most obvious improvement, bigger windows at the sides plus a 4-ft. window at the rear, offer an amazing increase in all-around visibility.

The new Ford Truck seat is something special. Wider, of course. Non-sag seat springs. Adjustable seat cushion *and* separate adjustable back-rest. Most interesting new Ford exclusive feature is that every seat now has a built-in *shock snubber* to help level out the ride.

For easier maneuvering in tight quarters, or in loading and unloading, turning diameter has been considerably reduced. This was done by "setting back" the front axle, widening the front tread, and by improving the steering geometry.

NEW "DRIVERIZED" CABS cut driver fatigue. Both Standard and Deluxe Cab (shown) have new curved one-piece windshield, 55% bigger; new wider adjustable seat; new seat *shock snubber;* new push-button door handles.

New F-900 BIG JOB has 27,000-lb. maximum G.V.W. It's right at home on extra heavy hauling jobs . . . wheels its 8-ton payload at calculated top road speed of up to 60 m.p.h.

Synchro-Silent type transmissions are now standard on all of the new truck models and at no extra cost. This means faster shifting without double clutching and less truck momentum lost.

New LOW-FRICTION design reduces piston travel, cuts down friction "power waste." You get more useable power...*on regular gas.* The 145-h.p. overhead-valve Cargo King V-8 has more power per cubic inch than any engine in its class. The 155-h.p. overhead-valve Cargo King V-8 is the most powerful Ford Truck engine ever built.

And only Ford gives you a choice of V-8 or Six in five different engines.

New Ford service accessibility saves time in the shop. Front ends have been redesigned. Hoods are wider. Frames are wider, too, permitting a new fender contour that makes engines much easier to get at.

Over 190 models in a greatly expanded line give you many more Ford Trucks to choose from in order to get the one *right* truck for *your* job.

FOR COMPLETE INFORMATION on all or any of the new Ford Trucks, write: FORD Division of FORD MOTOR COMPANY, P.O. Box 658, Dearborn, Michigan. State your work and what type of truck interests you most.

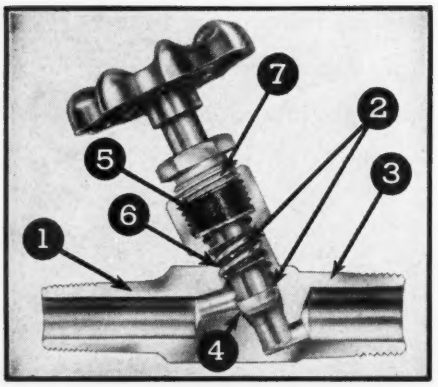
Fifty Years Forward 50TH ANNIVERSARY 1903 · 1953 *on the American Road*

FORD ECONOMY TRUCKS

SAVE TIME! SAVE MONEY! LAST LONGER!

fueloil & oilheat

The INSIDE STORY of *Guardian* SUPERIORITY



No. 1905 Oil Filter Valve made with ½" inlet I.P.T. male threads and ⅜" outlet I.P.T. male threads.

No. 1900 Oil Filter Valve

One valve may look much like another on the outside—but it's what's INSIDE that counts! Every Guardian valve has these features of superiority shown in the cutaway above:

1. **Denser, superior graining of extruded brass.**
2. **Finer machined thread and seating surfaces.**
3. **Greater wall strength and body strength.**

No. 1300 Two Tank Control Valve Assembly

4. **Identical brass in stem and seat for greater wear . . . eliminates seizure.**
5. **Preformed asbestos - graphite rings for packing uniformity.**

No. 1600 Underground Tank Valve

6. **Quick-acting threads for opening and closing.**
7. **Adjustable packing nut for take-up of packing wear.**

No. 1400 Globe Valve for Oil, Water or Gas

No. 1200 Individual Tank Control Valve

Guardian valves are designed for oil line service . . . built with precision . . . tested for uniformity. Look for the name "Guardian" on the valve.

Write for Bulletin V-101.

MEMBER OHI OIL HEAT INSTITUTE OF AMERICA

Guardian PRODUCTS CORP.
VALVE DIVISION

Dept. F-63, 1231 E. Second Street

Michigan City, Indiana

31-39 Allerton St., Boston 19, Mass.

Sheffler-Gross Co., Drexel Bldg., Philadelphia, Pa.

Wells Mfg. Co., 220—9th St., San Francisco 3, Calif.

The address of Davis Eng. Corp, incorrectly listed, should read 30 Rockefeller Plaza, New York 20, N. Y. Also the company name of A. P. Green Fire Brick Co. should be corrected to read as stated here.

❖

Secondary fueloil Stocks are higher than a Year ago

SECONDARY INVENTORIES of gasoline, kerosene, distillate and residual fuels, as reported by the Bureau of the Census, totaled 45.2 million barrels on March 31, a decrease of 2.6 million from the previous month, but 1.5 million above March 31, 1952. Of the four fuels, only gasoline registered a slight increase over a month earlier. Secondary supplies of all fuels were at higher levels than a year ago, but from 3% to 15% under February 28 levels.

Secondary stocks of distillate fuels totaled 13.8 million barrels and continued their seasonal decline with a reduction of 2.4 million barrels from the previous month. Current distillate stocks, though, were still 780 thousand barrels higher than a year ago. Kerosene inventories, at 6.1 million barrels and residual fuels at 5.0 million, both decreased slightly during the month; kerosene stocks were only slightly above last year, residual stocks increased 13%.

By PAD Districts, secondary inventories were distributed: District 1, 17.2 million barrels; District 2, 17.8 million; District 3, 5.3 million; District 4, 1.5 million and District 5, 3.4 million. District 1 and 2 reported declines from the previous month, due principally to seasonal reduction of distillate stocks. While District 1 gained 1.6 million barrels over the previous year, District 2 registered a more modest gain of 250 thousand. Stocks in District 3 were lower than a month earlier and a year ago, District 4 inventories were higher than in both periods and District 5, reversing the national trend, showed an increase of 5% over February stocks and a decline of 3% below March 31, 1952.

Secondary storage capacity in District 1, 2, 3 and 4 as of January 31 totaled 85.0 million barrels, divided 31.3 million barrels for gasoline, 13.1 million for kerosene, 30.1 million for distillate and 10.5 for residual stocks. Secondary inventories filled approximately 59% of the storage capacity on

Table 1.--SECONDARY INVENTORIES AND STORAGE CAPACITY OF PETROLEUM PRODUCTS--UNITED STATES, BY PAD DISTRICT

(Thousands of barrels)

PAD District (See map below)	Secondary inventories						Bulk storage capacity, 1953
	1953			1952			
	Mar. 31	Feb. 28	Jan. 31	Mar. 31	Feb. 29	Jan. 31	Jan. 31
TOTAL							
United States	45,167	47,768	53,455	43,658	46,646	50,468	n.a.
PAD 1	17,161	19,037	22,902	15,530	16,596	19,643	36,211
PAD 2[1]	17,774	18,626	20,258	17,526	19,427	20,015	36,451
PAD 3	5,296	5,384	5,215	5,631	5,627	5,825	9,592
PAD 4	1,545	1,492	1,530	1,467	1,451	1,377	2,705
PAD 5[2]	3,391	3,229	3,550	3,504	3,545	3,608	n.a.
GASOLINE							
United States	20,342	20,105	20,787	20,215	20,675	20,626	n.a.
PAD 1	5,396	5,622	5,788	5,216	5,049	5,565	9,028
PAD 2	8,854	8,495	8,867	8,718	9,002	8,781	15,832
PAD 3	3,035	3,185	3,093	3,299	3,524	3,345	4,785
PAD 4	983	918	902	928	982	845	1,618
PAD 5	2,074	1,885	2,137	2,054	2,118	2,090	n.a.
KEROSENE (INC. RANGE OIL)							
United States	6,107	6,426	7,159	6,066	6,495	7,133	n.a.
PAD 1	2,280	2,394	2,854	2,295	2,236	2,638	5,093
PAD 2	2,852	3,070	3,320	2,895	3,346	3,594	6,227
PAD 3	776	771	785	660	684	680	1,596
PAD 4	93	93	99	107	116	108	177
PAD 5	106	98	101	109	113	113	n.a.
DISTILLATE FUELS[3]							
United States	13,759	16,110	19,192	12,979	16,874	17,296	n.a.
PAD 1	6,026	7,775	10,092	5,300	6,344	8,114	15,803
PAD 2	4,892	5,735	6,432	4,966	6,018	6,389	11,628
PAD 3	1,223	1,029	1,033	1,049	932	1,123	1,800
PAD 4	461	476	523	425	348	418	693
PAD 5	1,155	1,095	1,112	1,239	1,232	1,280	n.a.
RESIDUAL FUELS[4]							
United States	4,959	5,127	6,317	4,398	4,602	5,423	n.a.
PAD 1	3,459	3,246	4,168	2,719	2,967	3,326	6,287
PAD 2	1,176	1,326	1,639	947	1,061	1,289	2,764
PAD 3	262	299	304	623	487	677	1,411
PAD 4	6	5	6	7	5	6	17
PAD 5	56	151	200	102	82	125	n.a.

n.a. Not available.
[1] Data for PAD 2 are revised.
[2] Data for District 5 supplied by the U. S. Bureau of Mines.
[3] Numbers 1-4 fuel oil and light Diesel type oil.
[4] Numbers 3-6 fuel oil and heavy Diesel oil.

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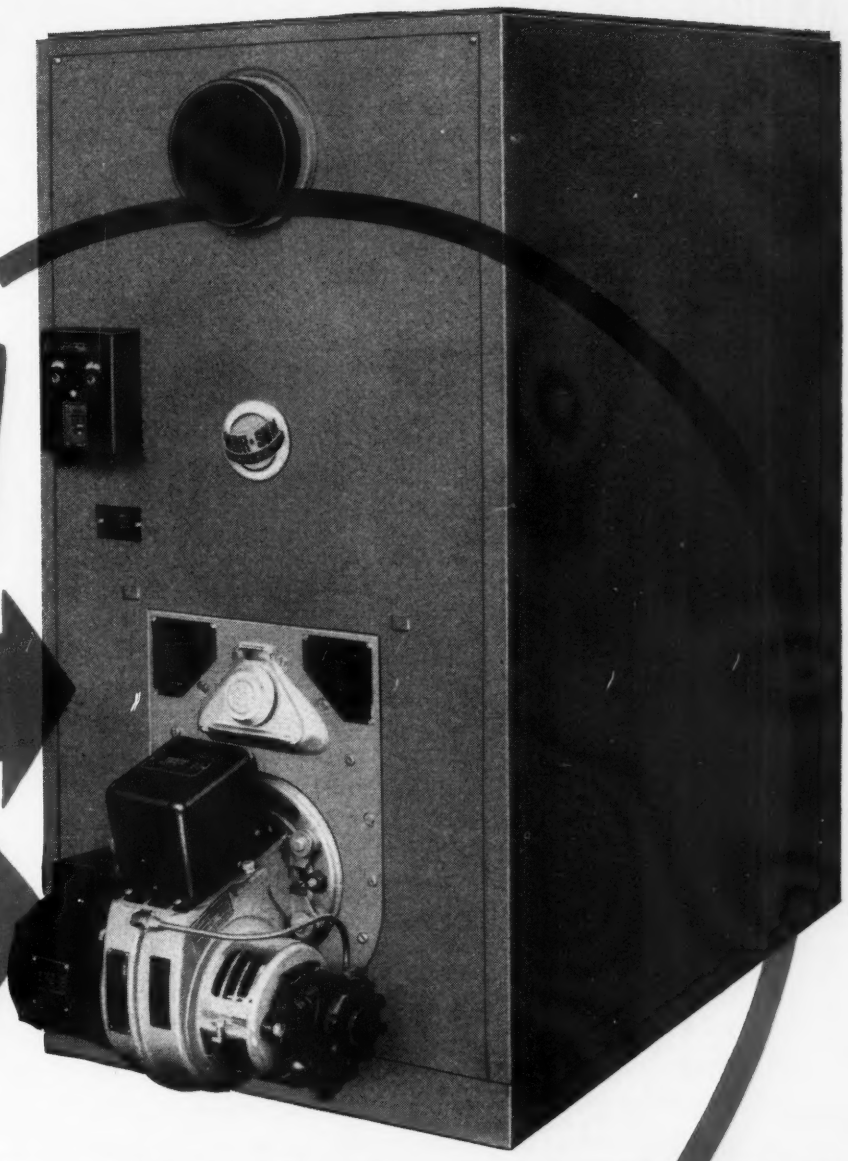

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January 31, compared with 63% on October 31 and 58% on July 31, 1952. Next check on storage capacity was made on April 30.

❖

OHI protests import Quotas before House Committee

MANY SEGMENTS of the oil and oil-heating industry appeared before a meeting of the House Committee on Ways and Means to protest against certain parts of the Simpson Bill for extending reciprocal trade agreements. Those sections of the bill considered harmful by many oil people appearing against it, would set up a 10% quota on all crude imports and a 5% quota on residual imports, based on domestic demand of last year.

Ralph Becker, managing director of the Oil Heat Institute of America appeared against the bill, for the oilheating industry. In his statement before the committee, Mr. Becker explained the membership makeup of the Institute, the various divisions and their functions. He stressed the fact that the industry within itself is highly competitive and that as far as coal and gas fuels are concerned the same situation exists.

14 million American Homes

Quoting figures from FUELOIL & OIL HEAT he told the committee that over six-and-a-half million homes were centrally heated by oil and that according to the Institute of Cooking and Heating Appliance Manufacturers Assoc., about seven-and-a-half million more homes are equipped with flue-connected, vaporizing oilburning space heaters. Added to this were the OHI's own estimates of 500,000 commercial and industrial oilburners in use. A conservative estimate, he stated, would be that 14,000,000 American homes depend on oil to meet their heating requirements, and that about one-third of our population uses oil heat at home or at work.

It was Becker's opinion that this large segment of the public must be considered in relation to the effect which the passage of Section 322 of H. R. 4292, (the Simpson Bill), would have, not only on users of residual fuel-

oil but also users of household oil.

In a prepared statement to the Committee of which Rep. D. A. Reed of New York is the chairman, Becker spoke as follows:

"The effect of the adoption of Section 322 of this Bill would be felt most drastically on the Eastern Seaboard. During 1952, the average daily import of residual oil was approximately 350,000 barrels, with practically this entire amount going to suppliers on the East Coast. Under provisions of this Bill, the amount would be cut to approximately 76,000 barrels per day.

"According to the figures of the Bureau of Mines and American Petroleum Institute, the demand in 1952 on the Eastern Seaboard for residuals was 770,000 barrels per day. The supply in barrels per day came from these sources:

East Coast Refineries	247,000
Gulf Coast Refineries	169,000
Imports	350,000
Misc. & Transfers	4,000
Total	770,000

"Eastern Seaboard refineries had a capacity for refining 1,135,000 barrels of crude per day. Out of which 247,000 barrels of residual per day were produced—relatively 21.8%.

"To meet the demand for residuals by cutting down daily imports from 350,000 to 76,000 barrels would require an additional 274,000 barrels per day of residuals from domestic sources.

"There are two obvious methods by which supply could meet demand. *First*, to maintain the present basis of a yield of 21.8% in residuals per barrel of crude would require an additional supply of 1,257,000 barrels per day in domestic crude—about a 15% increase in domestic crude production. *Second*, the refineries could increase the percentage in the amount of residual taken from each barrel of crude. This could run up to 40% or more if the refiner so desired. He has all kinds of flexibility.

"Please keep in mind that the present price of crude is approximately 50% higher than the present price of residual (bunker) fuel oil.

"By the first method, the result would be a terrific increase in supply of gasoline, distillates and other pe-

Prospecting for customers?

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The Directory Representative will gladly furnish you with all information. You can reach him through the local telephone business office.

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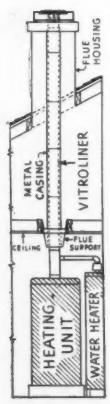
Attention
HEATING MEN

Heating Contractors install the Vitroliner Chimney in new homes at the same time they install the heating plant. This provides a complete chimney and heating equipment installation for 1 or 2 story homes and buildings using any fuel.

The Vitroliner Chimney weighs only 10-15 lbs. per ft. and installs easily and quickly in one hour or less. It can be mounted between ceiling joists directly over the heating plant.

Tailor-made and packaged at the factory to fit the individual building—no cutting or fitting at the time of installation.



Vitroliner gives more draft than a comparable masonry chimney and also provides attic ventilation. Made in sizes 6", 7", 8" and 10" diameter.

Quality built for long life. Accepted by F.H.A.—listed by Underwriters Laboratories and approved by local building authorities.

Investigate today this modern low-cost chimney.

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troleum products. This on top of present oversupply would demoralize the entire industry. Residual price would be raised drastically to make up for losses in other products which are in oversupply.

"By the second method, the refiner would be forced to get a huge increase in residual price and considerable increase in other petroleum product prices to stay in business at a profit.

"Reducing imports of residual and crude could easily create a scarcity in residual. Whenever such scarcity exists there is the opportunity for other petroleum products to be placed under pressure thus forcing prices up all around. As for the refiner, he must try to balance out a combination of all products produced to bring in a satisfactory profit. If he is restricted on import flexibility he can go through some very tough periods of production adjustment and change in price structure. The consumer, of course, would take the bigger licking in the end.

Restricting Imports Unsound

"Restricting imports of residuals and crude—at this time—does not seem to this Institute as feasible and sound:

"1. Scarcity of residuals or excessive price for them would not particularly hurt the huge utility which has equipment with which to convert to other fuels. However, by far the greater number of residual users, as hospitals, schools, small manufacturers, apartment houses, stores, etc., would of necessity either pay an excessive price for residual oil or convert to other fuels and replace present equipment.

"2. Refiners would be under constant pressure to increase the supply of residuals uneconomically.

"3. The consumer would face almost certain increase in price of fuel oil, gasoline and other oil products.

"4. Manufacturers and dealers in automatic oil heating equipment and fuel oil jobbers could lose a great part of the domestic oil heat market.

"5. If foreign oil finds no market in United States, it will seek other outlets thus limiting us on supply should we ever need it for national defense.

"6. Any type of legislation, such as the U. S. House Bill No. 4294 which seeks to establish end use controls on any commodity is detrimental to the future American economy as it interferes with free competitive enterprise."

It is expected that the bill will be reported favorably out of committee by a very small majority but will be defeated on the floor of the House or Senate in deference to the President's desire to extend the reciprocal trade agreements for another year.

N. Y. State University has Oil distribution Course

A TWO YEAR college course in petroleum distribution, management and technology, jointly sponsored by the Petroleum Education Foundation and the Institute of Applied Arts & Sciences, is now underway at that institution. It is designed to meet the industry's need in the Metropolitan New York area for petroleum technicians, sales and business managers and junior executives.

It will prepare graduates to sell, transport and manage the marketing and distribution of petroleum products to and through bulkplants and terminals to dealers, jobbers and other distributors.

Day and Evening Courses

Planned as both a day and evening course, it is open to high school graduates who show ability and desire to enter the petroleum industry after graduation. Tuition fees are moderate with two-thirds of the educational costs borne by New York City and State. A number of Petroleum Foundation scholarships valued up to $300 each are granted each year. Applications are available on request.

In the second year of the course students may participate in a cooperative work study plan and actually get paid for working in the industry while pursuing their technical studies.

Subjects given during the two year course include industrial marketing, petroleum testing, technology, chemistry, handling, applications and transportation. Other pertinent subjects include sociology, communications, physics, writing techniques, speaking,

Steal Money from the Chimney

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OIL BURNERS

Cut heating cost up to 36%

Fuel dollars that ordinarily go up the chimney are kept in the owner's pocketbook when a Sun-Ray Series "S" Oil Burner is on the job. That's why more distributors are selling more Sun-Ray burners than ever before. Want proof? Then...

Check These Sun-Ray Features

1. Sun-Ray Aerodynamic Housing.
2. Sun-Ray Combustion Head.
3. Delayed Action Oil Brake.
4. Precision Construction.
5. Burns Catalytic or Distillate Oils.
6. Ideal for Conversions and New Installations.

Against These Performance Results

1. Highest CO_2.
2. Lower stack temperature.
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4. 500° to 600° higher flame temperature.
5. Cleaner combustion – always.
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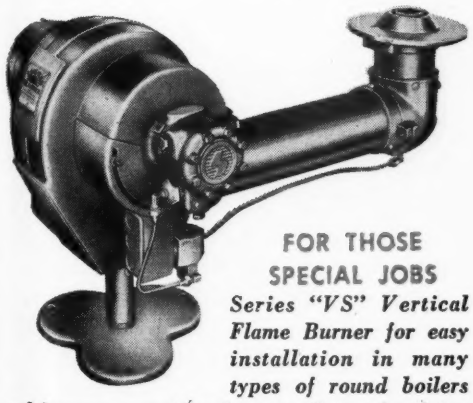
CLEANER HEAT

Series "S" Burner burns catalytic as well as straight distillate oil cleanly and completely. No smoke—no soot—no odor—no fuel waste. Three models: 0.7 to 2 g.p.h.—2 to 3 g.p.h.—3 to 6 g.p.h.



FOR THOSE SPECIAL JOBS

Series "VS" Vertical Flame Burner for easy installation in many types of round boilers and furnaces considered too inefficient for firing with conventional burners. No combustion chamber—no complicated hearth to build—no moving parts in the combustion area. Two models: 0.7 to 2 g.p.h. and 2 to 3 g.p.h.

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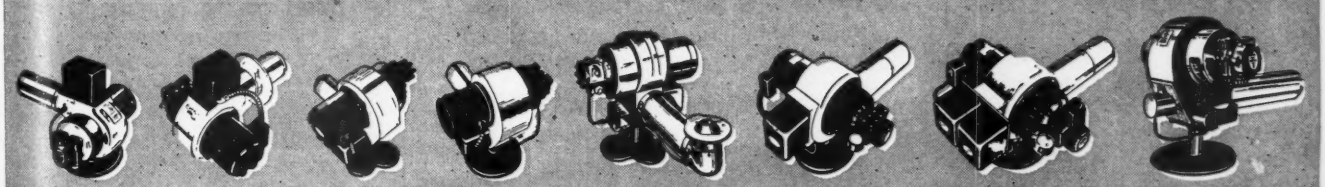
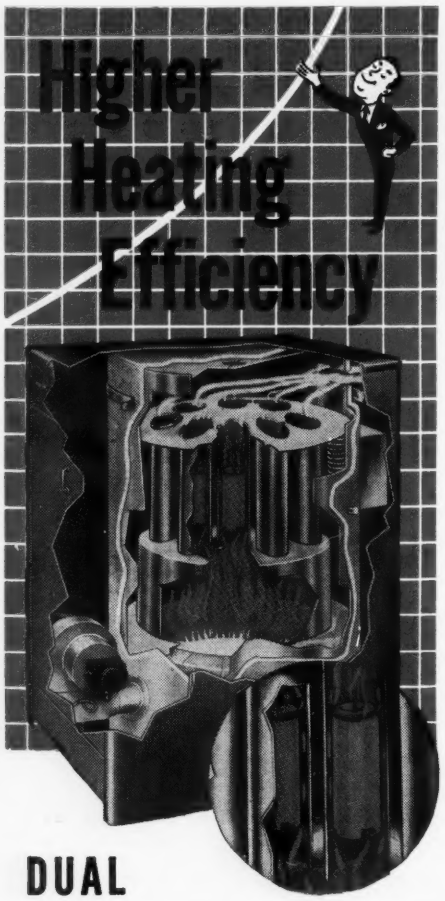


Models for Every Heating Need in Sizes from 0.5 to 25 g.p.h.



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Installation economy for you **because the Dual 8 is easy to install and service: the cabinet is installed after all piping is completed; all controls are on the front of the boiler; the intensifier tubes are readily accessible.** ***Economy for homeowners*** **because they get faster heat with less fuel: the intensifier tubes see to that by cutting chimney heat loss and speeding heat transfer. Then add A. S. M. E. Code Construction and contagious customer satisfaction ...that's a recipe for more sales and more profit.**

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sales techniques, motor vehicle operation, business management, business law and psychology.

Job opportunities open to graduates of this course are petroleum sales, office management, storage and handling, distribution and traffic management, promotion and advertising and equipment utilization.

❖

March housing Starts reported up by 26%

HOUSING STARTS, according to preliminary estimates of the U. S. Labor Department's Bureau of Labor Statistics, totaled 97,000 in March, an advance of 26% over February and about 7% less than March 1952. Total house building this March was proceeding at a seasonably adjusted annual rate of 1,114,000 units.

Pronounced gains were recorded in the New England and North Central States during March. Totals for the first quarter this year, 245,000 units, were almost equal to the 246,500 units started during January-March 1952. Private housing starts increased 23% to 88,200 during March as compared with February 1953, bringing the first quarter total to 227,400, about the same as last year.

Final reports for 1952 show a total of 1,127,000 new permanent nonfarm dwelling units started, about 3% above 1951 and 20% below the 1950 record of 1,396,000. The 1952 gain was entirely in private 1- and 2-family housing; public housing as a whole declined 18% to 58,500 units in 1952. Both private and public apartment house building declined in 1952, with 40% of the total number of units in this type of building publicly owned.

❖

St. Paul Survey shows Oilheating most popular

THE 1953 consumer analysis of the St. Paul, Minn., market, compiled and published by the *St. Paul Dispatch-Pioneer Press,* indicates that 55.4% of all homes in the area are heated with oil. Gas is second, being used in 24.4% of the homes, coal or coke heats 19.7% of the homes.

BE FIRST WITH BOTH!

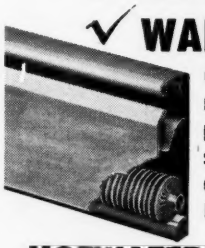
Be the most progressive dealer in your community by offering your customers

BASEBOARD *floorlevel* HEATING

in either

✓ HOT WATER OR

✓ WARM AIR

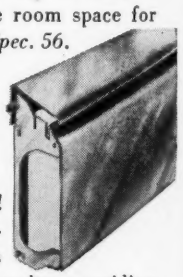


Complete packages eliminate separate inventory of parts. Occupy less storage space. Provide a complete, easy-to-ship package of heating equipment.

HOTWATER *FLOORLEVEL* BASEBOARD RADIATION

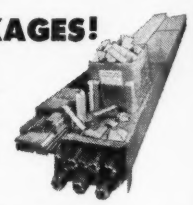
Attractive and modern metal baseboard with the "one-piece" heating element (fins solder bonded to tubing). Provides a radiant, convective ring of heat at floor level. Gives more room space for better living. *Send for Spec. 56.*

WARM AIR BASEBOARD RADIATION



No registers! No drafts! Heat is evenly distributed to cold walls through baseboard panels, providing uniform, draft-free warm air heat. *Send for Spec. 67.*

PROFIT PACKAGES!



Either system shipped in packages ready to install. All parts die stamped for perfect fit.

Send for Specification Booklets and the 12-page Floorlevel Consumer Booklet for easier selling.

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LOOK IN HERE

You are looking directly into one of the largest, best placed, most convenient wiring compartments you have ever seen in an ignition transformer*

Here's extra room, better design,—the kind of convenience you've wanted.

Jefferson's new wiring compartment extends all the way across and well into the rounded corners of the case. You'll find lots of finger room for installing connectors on either side.

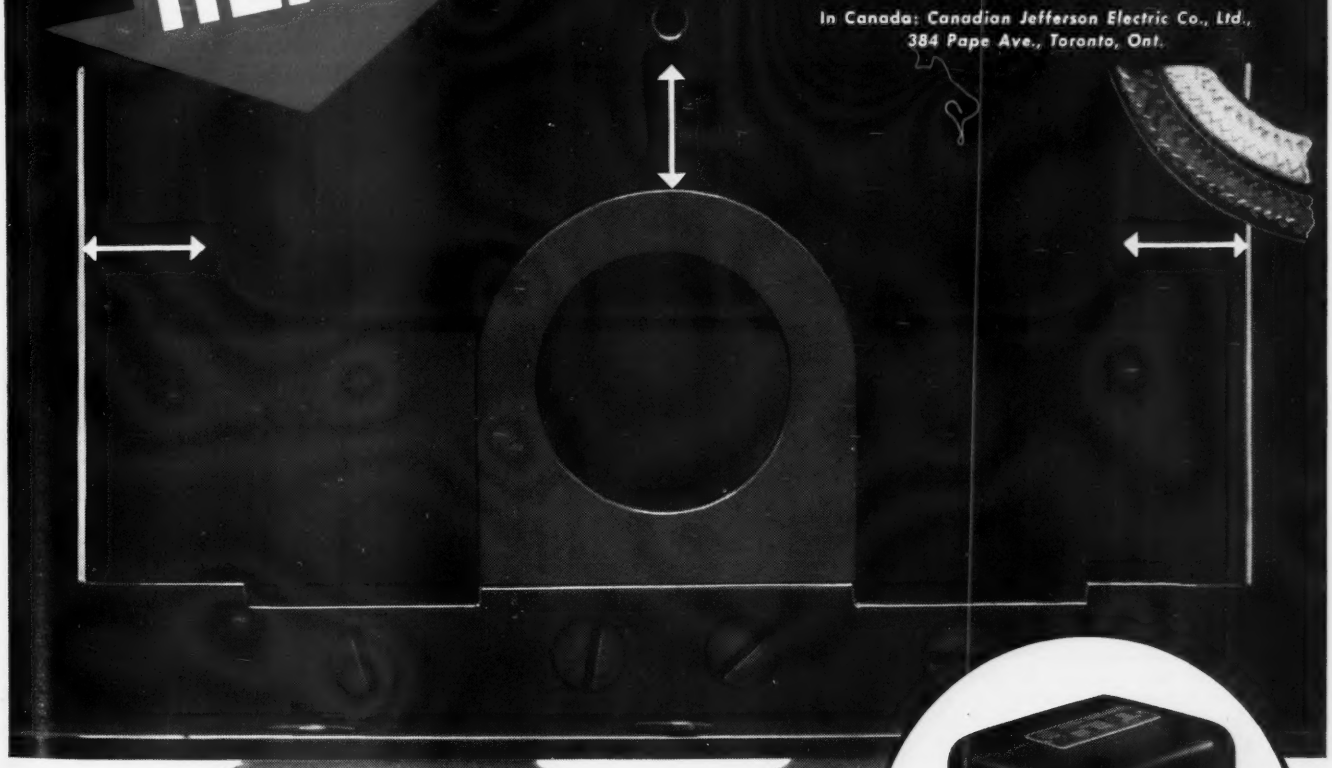
And see the connector ear in front. Plenty of space between ear and edge of compartment for easy replacement of as many as seven separate leads!

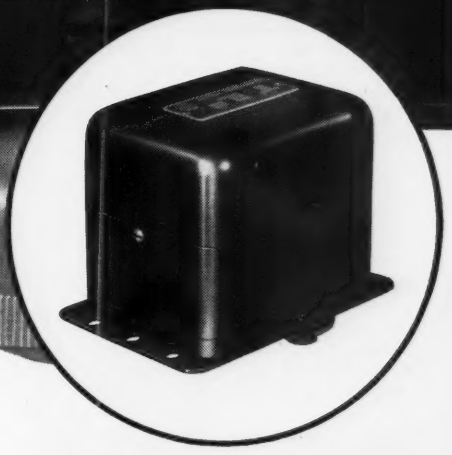
Now slip on the self-aligning design cover — the single lock-type screw securely fastens cover in place. "Neat job," you'll say. "Plenty easy and fast, too. Best transformer I've ever used!"

Try Jefferson Transformers and see! Bulletin showing all the models on request.

JEFFERSON ELECTRIC COMPANY
Bellwood, Illinois

In Canada: *Canadian Jefferson Electric Co., Ltd., 384 Pape Ave., Toronto, Ont.*





*Applies to 638-231 Series case design.

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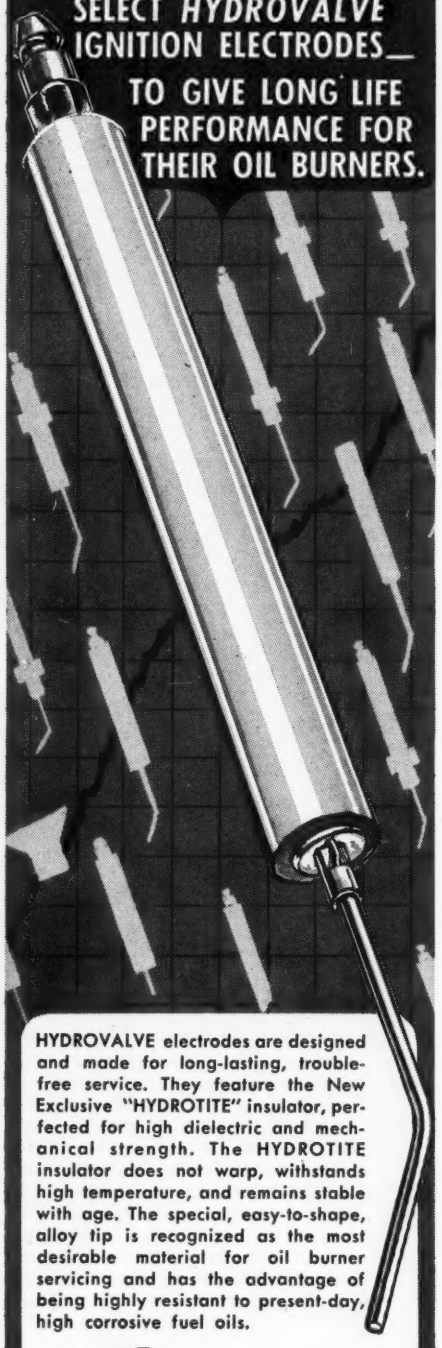
SELECT *HYDROVALVE* IGNITION ELECTRODES_
TO GIVE LONG LIFE PERFORMANCE FOR THEIR OIL BURNERS.



HYDROVALVE electrodes are designed and made for long-lasting, trouble-free service. They feature the New Exclusive "HYDROTITE" insulator, perfected for high dielectric and mechanical strength. The HYDROTITE insulator does not warp, withstands high temperature, and remains stable with age. The special, easy-to-shape, alloy tip is recognized as the most desirable material for oil burner servicing and has the advantage of being highly resistant to present-day, high corrosive fuel oils.

Samples to suit your own special conditions and requirements will be sent promptly and without cost. Just outline your needs. Let our engineering department assist in selecting the right electrode for YOU. Standard sizes in stock for immediate delivery.

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Fueloil most widely used in greater Washington Area

FIGURES compiled and published by *The Washington Star* in its 1953 consumer analysis reveal that oil continues to be the most widely used fuel in the area. The survey, made of the Greater Washington, D. C., market, includes the District, all of Arlington County and Alexandria City in Virginia and parts of Montgomery and Prince Georges Counties in Maryland.

Questionnaires which were returned during December and January show that the answers to the question "How is your home heated?" puts oil at the top, being used in 37.4%, or 134,419 homes in the area, with gas second. The tabulation lists the fuel used in the order of preference in the area's 359,408 homes.

	Percent	*Number*
Oil	37.4	134,419
Gas	30.4	109,260
Coal or coke	21.7	77,992
Electricity	0.2	719
Other	1.3	4,672
Don't know	0.6	2,156
Miscellaneous	8.4	30,190
	100.0	359,408

❖

Four out of ten Homes in Indianapolis are oilheated

A SURVEY, conducted by *The Indianapolis Star* and *The Indianapolis News*, among the 179,300 families in the Indianapolis, Ind., City Zone (Marion County), reveals that 71,400 or 39.8% of the total use oil for home heating. This represents an increase from last year when 34.6% of the families reported oil as the fuel they used for heating. Coal still is used in most of the homes, 48.0% or 86,000, but this represents a drop from 53.3% last year. Coke also dropped from 5.0% to 4.5%, 8,100 homes. Gas, on the other hand, increased slightly to 6.7%, 11,950 homes. Other types, 0.9%, and "not given," 0.1%, accounted for the balance.

When queried on the method of home heating, 76.9%, or 137,800 families reported central systems, 17.0% or 30,500 families, use room heaters and 6.1%, 11,000 families, employ other types of heating. Returns in all categories were virtually the same last year.

Ralph Thornburg has been appointed division sales manager, South Central Div., Blackmer Pump Co., Grand Rapids, Mich. Thornburg was formerly associated with Yale & Towne Mfg. Co., where he was sales manager of the pump division and most recently was with Marlow Pumps as its Eastern district manager. Thornburg will maintain his residence and offices in Dallas, Texas.

George S. Elder and *Robert B. Veith* have been appointed area sales managers for Silent Automatic Products, Timken-Detroit Axle Co., Jackson, Mich. Elder, former New England representative for Petroleum Heat and Power Co., and later for the Bradford Oil Burner Div., Malleable Iron Fitting Co., has been placed in charge of the New England sales area. Veith, who has been associated with the Philadelphia Electric Co. and with major appliance wholesalers and distributors in the East, will be in charge of an area composed of Maryland, Delaware, Washington, D. C. and parts of surrounding states.

D. Paul Bailey, director of market research for Iron Fireman Mfg. Co., Cleveland, O., since 1949, has been promoted to the post of assistant sales manager. His new position will include the supervision of market research. He is a member of the American Marketing Association, and is chairman, market research committee, National Warm Air Heating and Air Conditioning Association.

Walter R. Stiles has recently joined The Rybolt Heater Co., Ashland, Ohio, as chief engineer in charge of product design. He worked for many years as chief engineer, Hall-Neal Furnace Co. Stiles also held the same title with the Premier Furnace Co.

Albert W. Brown and *George W. Riddle* have been appointed industrial engineer and quality control engineer, respectively, for Air Conditioning Div., Remington Corp., Auburn, N. Y. Brown will have charge of plant layout, processing and production methods. Riddle will supervise product inspectors and production specifications.

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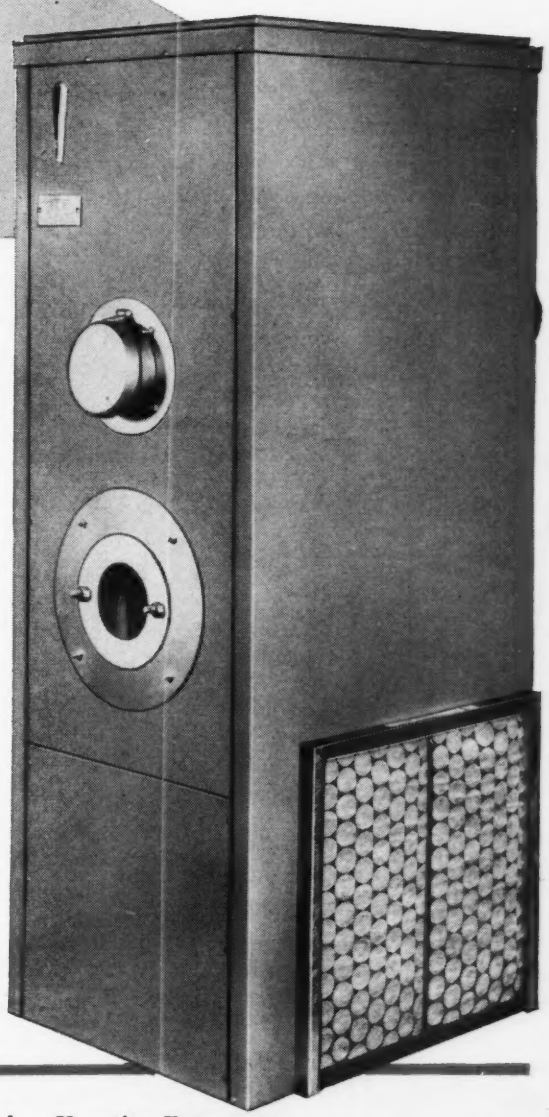
The popular "Jersey 75" with its typically efficient Kaustine "TEAR DROP" heat exchanger system is an ideal unit for small homes. This fully automatic oil fired forced warm air furnace requires a minimum of installation time and only 3½ square feet of space. It delivers 75,000 B. T. U.'s and is shipped factory assembled and completely wired. Weight 324 lbs.



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fueloil & oilheat

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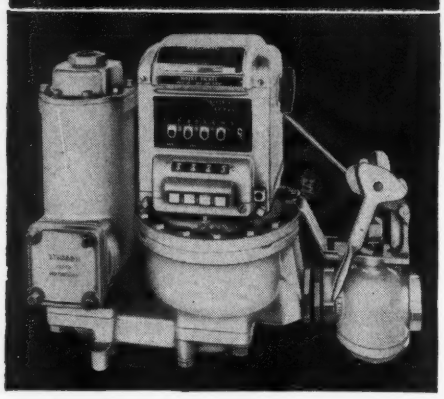

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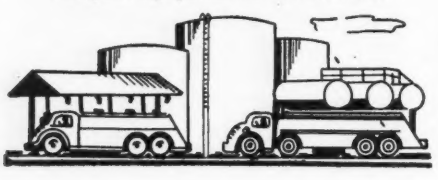


Letters

TYPHOON AIR CONDITIONING CO., INC.
Brooklyn 15, N. Y.

Editor:

We have received a gratifying total of 21 inquiries from the news item on our 2-ton residential cooling unit.

I must point out a conspicuous and important error in the copy, however. You state that the unit is "made in Florida with the distributor in Brooklyn."

All Typhoon residential combination heating and cooling units, except heat pumps, are manufactured in Brooklyn by the Typhoon Air Conditioning Co., Inc. Heat pumps, or reverse cycle refrigeration machines, also for heating and cooling residences, are manufactured in Florida by our affiliate, Typhoon Prop-R-Temp Corp. of Florida.

We admit the above can seem confusing, but would appreciate a correction. Please note that I am writing to you in order to get the true story to your readers, not with any idea of chastising you. This I could scarcely do, since in one of my releases I once referred to "a horizontal drop of 6 ft."

PETER T. WOTTON
Advertising & Publicity Director

❖

PETROLEUM SERVICE CO., INC.
Providence, R. I.

Editor:

I want to express my pleasure at the excellent article about our company which appeared in the May issue of FUELOIL & CIL HEAT.

However, I feel that the one omission in this article, and one of major importance, is the fact that my father, Samuel P. Lazarus, is the founder of Petroleum Service Co. He is still active today and is the motivating force behind the complete operation.

MORRIS H. LAZARUS

Many thanks for calling this unintentional oversight to our attention. The article mentioned that Samuel P. Lazarus founded the company in 1926 but was not specific enough in pointing out that he continues as its president, and is active in its management. Morris Lazarus, during the interview which produced the article, was emphatic in describing his father as "the best salesman we've ever had." We are happy to set the record straight.

❖

TIMKEN SILENT AUTOMATIC DIV.
Detroit, Mich.

Editor:

(NOTE—*Mr. Crawford's letter was in reply to a preliminary draft of the paper on dealer storage presented to the API Marketing Div. by its Fuel-oil Committee, of which both Crawford and the editor are members. The paper appears in the feature section of this issue.*)

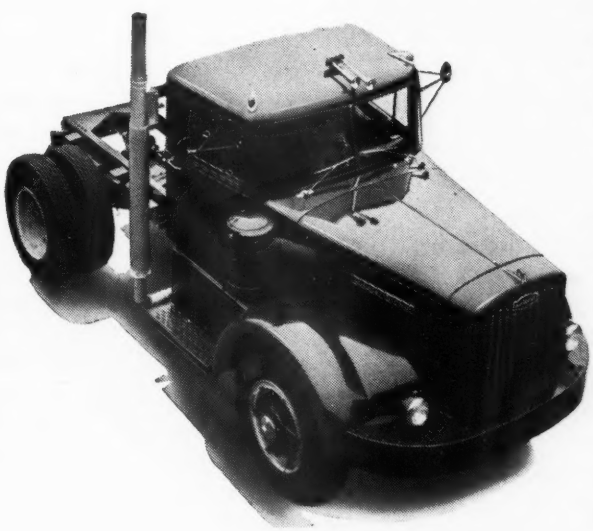
First, let's consider the storage problem as it affects refiners' or primary marketers' costs. You have pointed out that the primary supplier has a great deal to gain from operation at a level rate, both in refinery costs and transportation costs. You have pretty effectively dealt with the pitfalls (in so far as the primary supplier is affected) in filling marketers' storage in the summertime, only to have them use it up during the early fall months before withdrawals normally exceed refinery production.

Having these two situations in mind, I have carried around for a long time a nebulous idea of setting up a system of rebates for marketers, based on the marketer's accepting delivery from his supplier of a uniform volume each month—or perhaps allowing a small deviation from the level amount.

To illustrate, a marketer expecting to require, say, 16-million gallons of fueloil in a year, might make a contract to take 1-million gallons each month, and for each of those gallons he would be entitled to a rebate from the going market price—say 25 points off. For the additional 4-millions or so which he required to meet his sales figure, he would pay the market price.

Having that much extra margin to work with, he could work out his own individual problem as to whether he invested his capital in additional storage of his own—or spent his money to persuade users to increase their own storage—or subsidized the purchase of additional storage by users—or offered

These two great Autocars are the most wanted trucks on the road today



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FIRM NAME_____

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NUMBER OF TRUCKS IN FLEET_____

TYPE OF OPERATION_____

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reduced prices to users for off-season purchases. Many methods would be available to him and he could choose those which offered the best opportunity and the greatest return for his individual situation.

Another marketer with less storage (and less energy to apply to selling off-season oil to his users) might use the same total volume during the year but might be able to contract for uniform deliveries of only half-a-million gallons each month and would pay a proportionately higher average price per gallon. Still another supplier in the same area who had no storage of his own, and bought all of his supplies "under the fill," would not be able to use a contract of this kind and would consequently pay the posted price.

It seems to me that this approach to the question has good possibilities, and some ingenious guy among the refiners ought to be able to work it out on a practical basis. It would take a lot of mathematics to determine whether my 25-points figure was tolerable to the refiner and also whether it would be attractive to the marketer—but you certainly are dead right when you say that no one is going to make the investment of capital or the sales effort unless they are compensated.

Risks of Falling Market

One other factor intervenes—someone has to risk losses on a falling market. Since the refiner would have to absorb that loss if he had the product in his own storage tanks—or he would have to operate at higher cost if he made no provision for leveling out his production—perhaps such contract-buyers could be guaranteed against inventory losses on some co-insurance basis—with the primary supplier or refiner absorbing half of the loss on all the product in the marketer's storage in excess of the amount he would deliver in the next thirty days or for some other agreed-upon period. (A device of this kind would eliminate any cost-sharing during the heating season because few if any suppliers would be holding a thirty-day stock during cold weather.)

So much for that—so here's another more-or-less radical suggestion. As you point out, a considerable part of the storage problem could be solved if all users had the maximum storage permitted by law—thinking of basement tanks. So long as the marketer is willing to deliver oil at the same price to the one-tank user as he does to the two-tank user, there is little incentive for the user to buy a second tank. He will hold the dealer responsible in any event for keeping him from running out. One of the possible remedies for that situation is a leased tank deal. If the dealer owns the tanks, then he can decide for himself how much storage he will install, within the available space and within legal limits. He can persuade the customer to keep his tanks filled in off-season and mild weather if he puts the customer on a budget-payment basis. The leased tank idea has the additional merit of making the oil burner package much more competitive with the gas burner package in those markets where oil and gas costs on a comparable heat-content basis are pretty close. The oil burner installation is bound to cost $75.00 or $100.00 more than a competitive gas installation, if for no reason other than the cost of the oil tank.

Maybe some smart dealers can work out ways of leasing tanks to put themselves in better position to compete with gas equipment and then use the same program to make it possible to use their own discretion as to the amount of storage they install—thereby making it possible to reduce their delivery costs and to work backward through my original proposition and qualify for a lower purchase price for their fuel oil.

I know that each of these propositions individually would take a lot of selling but maybe some industry-wise fellows like Jack Minner and Bob Bartlett can twist them around so they will conform to industry conditions and can put enough promotion back of them to get them adopted by a representative number of operators.

T. A. CRAWFORD
Vice President & General Manager

❖

Buckley M. Byers has been appointed general manager, wrought iron sales, A. M. Byers Co., Pittsburgh, Pa. Byers joined the firm in 1940.

fueloil & oilheat

How much fueloil Storage?

Should primary Suppliers or local Marketers provide the needed Expansion?

IN THE EIGHT YEARS since the close of 1945 the demand for distillate heating oils has grown 137%. This is much greater than the increase for petroleum products as a whole. Typically, gasoline growth in the eight years was 65%, or less than half that of distillate.

This phenomenal heating oil expansion has introduced to the industry a number of serious problems, not the least of which is that of adequate storage. The seasonal nature of fueloil distribution is demonstrated by the fact that while 73% of heating oil is delivered at the wholesale level in the fourth and first quarters of a year, a little more than 50% is produced by the refineries in that half year.

The exact relationship of these figures indicates that more than 20% of the year's demand must be stored in advance of the greater consuming period. As a practical matter, the seasonal storage should be in the neighborhood of 25% of the annual demand, to be on the safe side considering the uncertainty of winter weather.

The 1952 consumption of heating oils is estimated at 263,000,000 barrels. This does not include kerosene or range oil although it does include some No. 1 distillate. For the purpose of this study we are thinking primarily of the distillate heating fuels and all of the figures will reflect that position unless otherwise stated.

While this seasonal pattern of deliveries of heating oils is based on detailed studies made by certain large suppliers, it can be confirmed by an analysis of the total distillate-supply and demand picture.

When we think of heating fuel only, the quarterly pattern is even more sharp. A five year record of heating oil sales by Socony-Vacuum in the area East of the Rockies shows sales in the first quarter to be 41.1% of the year, in the second quarter 15.8%, in the third quarter 11.4% and in the fourth quarter 31.5%.

We see then, again in Table I, that in the second and third quarters of 1953 there is an indicated stock accumulation requirement of 400,000 B/D or a little over 73 million barrels during the period. As the demand for other distillate uses such as diesel fuels for vessels, railroads and automotive equipment and for industrial processes are constant throughout the year, this stock accumulation must be considered as necessary for meeting the heating oil demands only. The estimate of heating oil demands for 1953 is 288,000,000 barrels.

TABLE I

United States—Total Distillates, All Uses

ESTIMATED SUPPLY AND DEMAND

Year 1953

Thousands of B/D

SEASONAL PATTERN OF SUPPLIES	*1st Qtr.*	*2nd Qtr.*	*3rd Qtr.*	*4th Qtr.*	*Year 1953*
*Distillates***					
Refy. Prodn.	1,562	1,441	1,501	1,593	1,524
Transfers	8	8	8	8	8
Imports	8	8	8	8	8
Total	1,578	1,457	1,517	1,609	1,540
SEASONAL PATTERN OF CONSUMPTION					
*Distillates***					
Domestic	2,037	1,043	967	1,760	1,450
Exports	67	80	85	65	75
Total	2,104	1,123	1,052	1,825	1,525
SEASONAL PATTERN OF PRIMARY STOCK CHANGES					
*Distillate***	—526	+334	+465	—216	+15
*Storage Capacity**	*Jan. 1, 1952*				
Total Clean Products*	443,000,000 Bbls.				

*Includes total primary shell tankage capacity to store gasoline, kerosene and distillate a/c N.P.C. report of the Committee on Petroleum Storage Capacity—December 9, 1953.

**This represents the total product as reported by the Bureau of Mines, including oils sold for heating purposes, for Diesel engines and all other uses.

Primary Storage added

Since refiners and other primary suppliers report only in terms of clean product storage, it is difficult to appraise the amount of primary storage available for distillate fuels only.

However, in consideration of the fact that for each four barrels increase in heating oil business per year, there must be an additional barrel of seasonal inventory in the fall, it is easy to determine that in order to support the growth of this business, as mentioned in the first paragraph, the primary suppliers apparently have provided for storing at least an additional 42,000,000 barrels of seasonal inventory since the year 1945.

To the extent that the supplier can move heating oil away from the refinery into storage at the consuming centers in the second and third quarters of the year, he can come nearer to uniform yields in his refinery operation and uniform transportation requirements. He can reduce the need for refinery expansion and peak trans-

portation facilities as he approaches the point of uniform runs and shipments through the four quarters.

Several important factors have prevented primary suppliers from building even more large terminal storage capacity. Shortage of steel during the past three years has been a factor although not the primary one. Capital costs, both in the construction of storage tanks and in the carrying charges to keep them filled, have probably been a stronger influence. This consideration, however, will no doubt be temporary since growing storage can save far more by eliminating seasonal peaks than the cost of added refinery capacity if they are not eliminated.

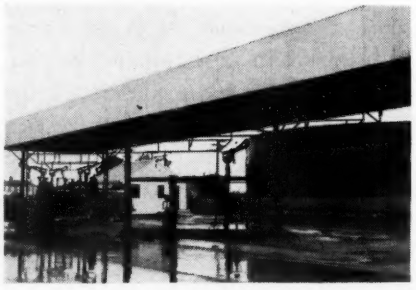
Then it is becoming increasingly difficult to find suitable sites for large terminal storage plants. Deep water locations along the Seaboard are pretty much occupied by industry of one kind or another, and where they are available the land values are very high. At inland points local ordinances very often restrict the construction of storage terminals at the most economic locations. In the light of these handicaps it can be said that the primary suppliers as a group have done a creditable job when they increased their storage capacity faster than their sales.

Secondary storage Problems

At the secondary or marketing level considerations are totally different. In the years since the close of World War II a number of attempts have been made to get the marketers to increase first their bulk storage capacity and then the amount of product that they will store during the off peak months. There have been a number of examples where these marketers cooperated fully with the primary suppliers for a relatively brief period but then, for economic reasons they went back to the course of simple self interest.

One of the large primary suppliers has made a study, covering the past seven years, of its direct sales of heating oil to consumers and its sales to resellers. The company has plotted this in curves showing the monthly percent of the year's total taken by each of the two classes of buyers. The sales to consumers naturally follow very closely the pattern of degree days. The sales to resellers depart from this several times during the seven year period but in each instance there is a very clear reason why this group of marketers went long or short on inventory.

Sometimes it was a matter of supply stringency. Again it was related to widespread anticipation of price increases. In other instances these movements occurred when the winter was extra mild and the marketer anticipated a possible price break at the tank car level. The significant observation in this study is that the marketers moved entirely in their own self interest each time they departed from the seasonal tank wagon pattern.



They will probably always do that for the simple reason that most fueloil marketers rely on bank credits for a part of their working capital and the banker keeps a close eye on their operating results.

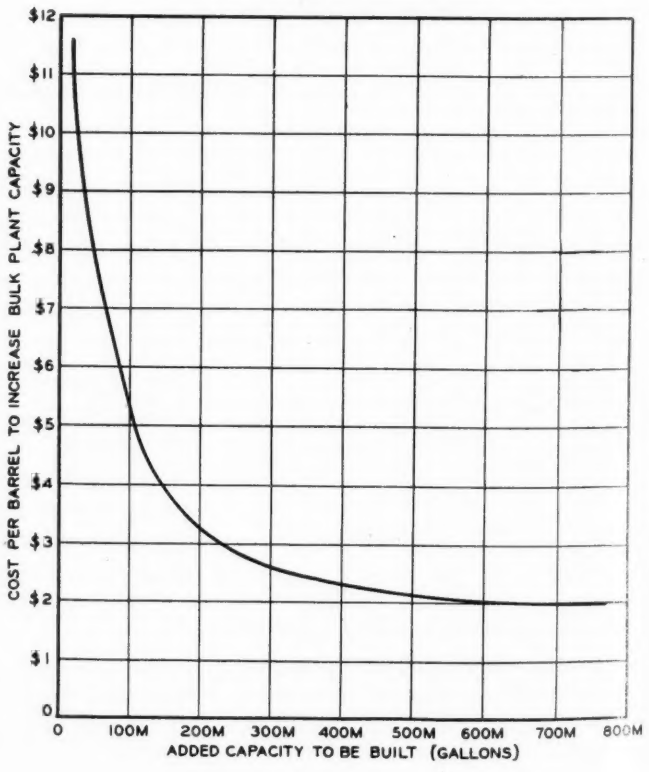
It can be stated almost without qualification that the heating oil marketer is not going to increase appreciably his storage capacity nor his inventory beyond the point of necessity in the conduct of his business, unless he can see some economic advantage.

There have been a number of studies to learn how much storage capacity actually exists and its relation to the demand for distillate heating oils. In two studies by the magazine FUEL OIL & OIL HEAT one group of 100 fueloil marketers east of the Rockies was found to have a storage capacity equivalent to 11.3% of annual sales. The second study covered 300 marketers from all sections of the country and the storage ratio was found to be 8.3% of annual sales.

Socony-Vacuum in checking 1,000 resellers found that their storage capacity was 9.9% of their 1952 sales. Maritime Petroleum Corporation of New York checked 200 of its marketers at inland points around the New York area and found their storage ratio to sales was 5.5%. Atlantic Refiining Company checked its fueloil marketers in eastern Pennsylvania and found a ratio of 4.0%.

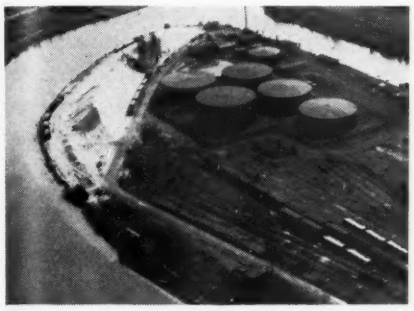
The Bureau of the Census in its study of secondary inventories and storage capacities showed for August 1, 1952 storage capacity for distillate fuels of 28,795,000 barrels east of California. This includes, in addition to heating oil, light diesels marketed for local consumption. The great bulk of this capacity, however, could be considered to apply to heating oils. Under that assumption secondary storage capacity represents about 9.7% of 1952 demand. It is safe to conclude

SMALL TANKS COME HIGH



that the actual secondary storage capacity for distillate fuels is somewhere in the 8% to 10% range. No consumer storage is included.

T. A. Crawford, one of the committee members, to check the activities of a few of his own dealers, asked a dozen of the larger ones to supply some of their operating data. Twelve selected dealers participated, spread geographically from Massachusetts to Iowa. These dealers had average bulk storage capacity for No. 2 oil of 485,000 gallons. Their sales of No. 2 heating oil in the 12 month period, October 1, 1951 to September 30, 1952, averaged 3,445,000 gallons. Thus the group had storage capacity equal to 14% of annual sales.



The table shows the average sales and storage characteristics of these unusual companies.

Average Operating Characteristics

	Oct.-Dec. 1951	*Jan.-Mar. 1952*	*Apr.-June 1952*	*July-Sept. 1952*
Average percent of storage filled	36%	57%	47%	84%
Sales, times storage capacity	2.1	2.9	0.9	0.5
Sales, times average actual inventory	5.7	5.0	1.9	0.6
Percent of year's sales	32.7	45.0	14.6	7.7

When asked if they planned to increase their present storage capacity during the period from now through 1955, only two of the twelve companies will do this, and the amount of the increase when spread over the whole twelve companies represents only 1.3%.

On the other hand, these twelve companies have done a creditable job of increasing their storage capacity in the five years ending last October. Seven of the twelve companies added tankage during that period and the aggregate increase when spread over the entire 12% was 50%. Thus while these companies have seen good reason to increase their storage capacity in the past, they may wait for economic advantage for further expansion.

To what extent would it be desirable to have the local marketer increase his storage capacity above the 8% to 10% average that now exists? Quite a number of incentive plans have been tried in recent years but none were totally successful. In some instances the marketers were given a special summer discount, usually one-half cent. This worked quite well during the actual period of the discount but as soon as normal prices were resumed many of the marketers pulled down their inventories in September or October to take their extra half cent profit as quickly as possible.

At other times marketers were offered deferred billing to October or November on such product as they would buy in the summer in addition to their normal storage pattern. This was not particularly effective, even when they were guaranteed against any losses through a drop in tank car prices. The marketer does not particularly like to carry large obligations on his balance sheet unless he is being rewarded.

In the committee's discussion of encouraging marketers to increase their storage, it was recognized that there is an important difference in the cost per barrel of constructing tanks, depending on the tank sizes. The accompanying chart shows about how this works out. A substantial group of fueloil marketers was asked what it would cost them to build additional tankage to increase their storage capacity 25%. The smallest marketer is faced with a very high cost compared with the larger company.

Notice that where a new 20,000 gallon tank is to be added the construction cost is approximately $11 a barrel. A 100,000 gallon tank according to these estimates costs a little over $5 a barrel. A 700,000 gallon tank costs only $2 a barrel and at this point the curve seems to have about hit a straight line, indicating that the $2 a barrel rate will cover most anything above that.

The total group of companies reporting in the study that made possible this curve estimated that they would be out of pocket about .52¢ per gallon for any additional tank capacity that they would erect to carry seasonal storage only, as contrasted to normal working storage. This .52¢ per gallon covers interest and amortization of the investment, bank interest and insurance on the inventory. Naturally, this cost would be much greater to the very small company and somewhat less to the big operator.

One executive of a primary supplier suggested that seasonal storage at a local bulkplant of less than 50,000 gallons was hardly worth giving serious thought. This same executive mentioned that in his company 7% of the

(*Please turn to page 169*)

Dallas API Report

This article covers a paper prepared by a special study group from the Fueloil Committee of the Marketing Div. of the American Petroleum Institute, and presented at the Dallas, Texas, meeting May 5. J. L. Minner of Shell Oil Co. is chairman of the Fueloil Committee and Robert Gray of FUELOIL & OIL HEAT *was chairman of the special study group. The other participating members were:*

D. L. Barrett, Esso Standard Oil Co.
C. M. Blickensderfer, Sinclair Oil Corp.
F. C. Colegrove, Allied Oil Co.
J. A. Collins, Frontier Oil & Refining Co.
T. A. Crawford, Timken-Silent Automatic Div.
L. B. Fox, Socony-Vacuum Oil Co.
Walter Holmgren, W. H. Barber Co.
Carl Jonswold, Arrow Petroleum Corp.
John P. Knight, Gulf Oil Corp.
H. F. Law, Pure Oil Co.
Everett Miles, Standard Oil Co. (Ind.).
J. J. Mulvey, Atlantic Refining Co.
H. B. VanCleve, Maritime Petroleum Corp.
M. N. Vining, Diesel Oil Sales Co.

Showing a Profit in Service

Progressive Management makes operating a service Department worthwhile

by
Joseph S. Matachinskas*

MAY I STATE at the outset that it is possible to make money in service. I have made money in service as have other service managers.

Last year we lost money because of labor trouble we had during the entire month of November. Barring any labor trouble this year we will either break even or make money at the end of the year. We do not credit our service with oil sales.

We service all types of No. 5 and 6 oilburners; we service all makes of light oil burners, low pressure, high pressure, rotary and also General Electric burners.

We have unionized servicemen. Our top man gets $2.15 per hour, works 40 hours a week and gets time and one-half for overtime. He gets nine paid holidays, two weeks' vacation, and various other benefits such as life and accident insurance.

Company-owned Cars

We furnish company owned cars to all but one man. Before we turned to company owned cars we conducted a test for one full year. We kept accurate costs on three types of operations. We purchased several cars, we rented several other cars and we paid servicemen for the use of their cars. They received 0.38¢ per hour.

The analysis at the end of the year showed that company owned cars were the cheapest to operate. Rented cars were second and servicemen owned cars were the costliest. We turned to company owned cars. We have set up a program with a local automobile dealer where we turn our cars in yearly and for a set figure we get new cars. Thus we have established a set depreciation figure for our cars.

Currently we have six full time servicemen. In addition to these men we have two top servicemen whom we call service supervisors. One is a crackerjack on light oilburners, the other on heavy oilburners. They fire and inspect all new jobs immediately after the installations. They spend some time telling the new owner something about his new equipment. We feel customer education will help reduce nuisance service calls. These men also follow up repeat calls thereby reducing our callbacks.

February 1948 Service Department Financial Summary

Name	*Income*	*Paid Out*	*Profit or Loss*	
A	$ 423.92	$ 336.56	$ 87.36	—
B	515.29	358.60	156.69	—
C	542.16	387.49	154.67	—
D	388.60	322.82	65.78	—
E	440.61	446.63	—	$ 6.02
F	224.97	303.91	—	78.94
G	381.77	288.73	93.04	—
H	354.32	311.88	42.44	—
I	462.29	304.27	158.02	—
J	400.74	314.69	86.05	—
K	324.18	318.65	5.53	—
L	419.42	338.91	80.51	—
Totals	$4878.27	$4033.14	$930.09	$84.96
		less	84.96	
		Gross profit	$845.13	

Figure 1

Eighty percent of our light oil accounts have service contracts. We have three types of contracts.

Plan 2—$15.95 includes an annual overhaul and emergency service (labor only).

Plan 3—$19.95 includes the above and also covers burner parts.

Plan 4—$25.95 includes everything in Plan 3 and in addition covers the combustion chamber and 275 gal. fuel oil tank.

Our service contracts are renewed monthly. We simply send the customer an invoice for his contract 30 days before his contract expires and the customer promptly sends his payment to us.

We go after service sales for additional income for our service department. We sell boiler water treatments, mixing valves and fueloil filters that are not covered by the contracts.

We used the fueloil filter letter printed in the March issue of FUELOIL & OIL HEAT. In two weeks we mailed out 54 letters. Eleven promptly came back and the filters were installed. This gives up 20.3% replies which we feel is very good. Then our service dispatcher phoned the other 43 customers to sell them the filters and we are continuing to send more letters. We feel these filters will reduce our service calls for the coming year.

We found we had a lot of motor and stator rewinds during the course of a year. To reduce these costs we installed, on all burners under service contracts, a fusestat to protect the motor. This was done at no charge to the customer. We reduced our motor repair bills over $1,000 the next year. This does not include labor saved.

Our company service policy is: "to give the customer the best service possible at the lowest cost possible." We're not aiming to make a profit. If we make a profit this year we plan to either reduce our service contract price or give the customer more for his money.

Service is no longer a necessary evil. Service is an excellent means by which you can build your business. But it must be good service.

How can you build a good service department? It must be built around the servicemen.

I feel that if you can "Keep the servicemen happy, they will do good work; good work will keep the customers happy; happy customers will bring in more customers." And logically, your business will grow. Keeping this in mind we try all kinds of methods to keep the men happy.

Education is extremely important in

*Service Mgr., Bklyn. Cornell Utilities, Inc.—a talk given at annual OHI convention at Chicago on April 22nd.

building self confidence in a serviceman. If he is confident, he will do good work, which in turn will make him happy.

Realizing this we conduct service schools nine months out of the year. Class is held one night each week. The men come of their own free will. We have dinner together about 6 P.M. After dinner we take up service problems that came up during the week. We cite specific jobs and tell of how we finally solved the problems. After this meeting we conduct our school.

We use anyone and every one available as instructors. We use engineers, salesman, manufacturers representatives, suppliers, service supervisors and myself. We have just finished a specialized General Electric training course and Bill Ormandy, our service supervisor, has started a brief review of heavy oil service.

Attendance runs high and percentages run from 44% to 100%. The majority are 77%—82.5%—93.5% and 100%.

Measuring Productivity

The average serviceman likes to feel he is a part of the company he is working for. He likes to feel his work is worth something to the company. One method I used to show this to the individual serviceman is illustrated in figure 1. This is a summary of all the men. Each man received an individual summary. It was not posted on the bulletin board. It got so that servicemen asked each other "How much money did you make last month?" One man's wife called it his "report card" and when he failed to show it to her she would call and ask how he made out.

Currently I am using a very simple method to measure a serviceman's productivity—figure 2. A total weekly average is found and then each man is measured as to where he stands in relation to the Average.

SERVICE MAN	POINTS	CALLS COVERED	POINTS	CALL BACKS	AVERAGE CALL TIME	POINTS	% CALL BACKS	POINTS	TOTAL POINTS	HOURS WORKED
A	10	113	5½	4	1.92	3	.0035	9	27½	217¼
B	6	111	4	3	1.81	4	.002	12	26	202
C	2	106	2	4	1.72	7	.0037	6	18	183½
D	12	113	5½	4	1.96	2	.0035	9	28½	221½
E	14	127	7	9	1.81	5	.007	4	30	230
F	4	109	3	9	1.76	6	.008	2	15	192½
G	8	57	1	1	3.7	1	.001	14	24	211¼
Totals		736		34						1458

Figure 3

I make a practice of getting out daily and popping in unexpectedly on a serviceman while he's on a service call. Sometimes I catch something he does wrong and I show him the correct way to do it. I show him how he stands in relation to the weekly average. I give him a verbal pat on the back if he has earned it or tell him he's below the average. If a man is repeatedly below the average I try to find out why and help him along.

I find meeting the men on the job loosens them up and is helping us build a better relationship again.

Call backs cost money and are a nuisance to the customer. Figure 3 shows a method I used to reduce callbacks, to develop a competitive spirit and to make servicemen happier. Note that of the 736 service calls handled that month there were 34 call backs. A total of 4.4%. We were able to reduce this to 2% later on.

In setting up the point system used in figure No. 3 it was necessary to consider many facts such as:

1. How many hours did each man work? Since a man's desire to cooperate is shown by the number of hours he works, this point here should be double weight.

2. How many calls did each man complete? This is a measure of the man's productivity. The point is single weight here.

3. How many call backs did each man have? Since this is a direct measure of a man's efficiency the point is given double weight.

4. What was the man's average time per call? This is a measure of the man's ability and so was given a single weight point.

Notice that in figure 3 there are 7 servicemen working that month. The single weight points run from 7 down to 1, while the double weight points run from 14 down to 2.

Now look at serviceman E. He worked 230 hours during the month for which he earned 14 points. He covered 127 calls during those 230 hours. He earned 7 points for this. He averaged 1.81 hours per call which earned him 5 points. He had 9 callbacks. Since

Figure 2

Serviceman	*A*	*B*	*C*	*D*	*E*	*F*	*G*	*Total*	*Weekly Averages*
Av. Hours Per Call	1.2	1.4	1.6	1.4	1.8	1.1	1.3		1.3 Hrs. per call S. T.
Calls Str. Time	33	27	25	28	22	37	36	213	1.9 Hrs. per call O. T.
Av. Hours Per OT Call	4.5			2.1	3.0	1.6	.6		30.4 Calls per SM S. T.
Calls Overtime	3	0	0	11	3	5	11	33	4.7 Calls per SM O. T.
Hrs. Str. Time	40	40	40	40	40	40	48	288	41.0 Average Hrs. S. T.
Hrs. Over Time	13	0	2	23	9	8	6	63	9.0 Average Hrs. O. T.
Phone Expense	6.20	3.40	3.40	3.70	3.70	4.80	4.30	29.50	4.21 Average phone expense

RADIO CAR PERFORMANCE	SERVICEMAN A	SERVICEMAN B
INCREASE IN SERVICE CALLS	15	47
INCREASE IN TRAVEL TIME	4.9 min.	
DECREASE IN TRAVEL TIME		2.3 min.
INCREASED TRAVEL COST	$21.54	$21.30
INCREASED SERVICE INCOME	$119.84	$488.43
SALARY DECREASED	$16.40	
SALARY INCREASED		$120.60
SERVICE PROFIT INCREASE	$136.14	$377.14

Figure 4

this was high percentage he earned only 4 points. His total of 30 points was the highest for the month and so he won the monthly prize of $15.00 worth of tools.

Periodically, as an added bonus we would offer an all day trip to the General Electric factory to the serviceman covering the most calls for the month. We would arrange with the area field engineer to escort the serviceman through the factory, and to take him to lunch. When a man came back from such a trip his morale was high and his enthusiasm would bubble over and spread to the other men.

When a service call is completed, we send out service follow-up cards. They are mailed daily by our dispatcher. We are interested in three things. 1—Was the job completed in a workmanlike manner? 2—Was the serviceman courteous? 3—Is the equipment operating to the customers satisfaction?

Replies vary from 28% to as high as 45% of the total cars mailed out. Cards that indicate satisfied customers or have complimentary remarks are called "Bouquets" — Cards that require a follow up of any kind; i.e. letter, phone call or service supervisor visit, are called "Brickbats." "Bouquets" are posted on the company bulletin board. Bouquets average from 87% to 91%; brickbats, 9% to 13%.

Here are a few Bouquets:

"The service as well as all dealings with your company has been highly satisfactory. I never made a wiser investment than with your concern."

"Your service could not have been any better. Servicemen were prompt when called and never had to call up for oil. Thanks for service."

"During seven years we (my wife and I) have found you reliable, and am happy to do business with you."

"Service, men, equipment and comfort, all that could be desired."

Here are a few "Brickbats"—

"I seem to have trouble getting hot water constantly. Kindly advise me what I may do."

"Stopped 3 days later, started it myself. Can't figure why a fine firm like Brooklyn Cornell can't get my equipment working perfectly."

"I'm not satisfied."

"Cover off box."

"The hot water was not regulated right."

Some time ago I became interested in two-way radios for service work so I decided to conduct a test.

I selected the two top servicemen and kept accurate records on their work for a month without the radios. At the end of this month two-way radios were installed and the same records were kept for another month. Then the records were analyzed (figures 4 and 5) show a summary.

Radios were installed in 10 service cars and one in my own car. With a radio in my car I was able to keep a close check on what was going on while I was out of the office. The dispatcher kept accurate control of the men for while they were traveling between calls they were "on the air." When the man reached his destination he went "off the air." When he finished the call and came back to his car he came back "on the air."

I feel two-way radios should be a part of every service organization.

In closing may I say I don't profess to be an expert on either service or management. If I've given you some thoughts or ideas to mull over I feel I've accomplished my mission. I've had a lot of ideas and was able to try them out because the people I work for are progressive and looking for ways to improve their quality of service.

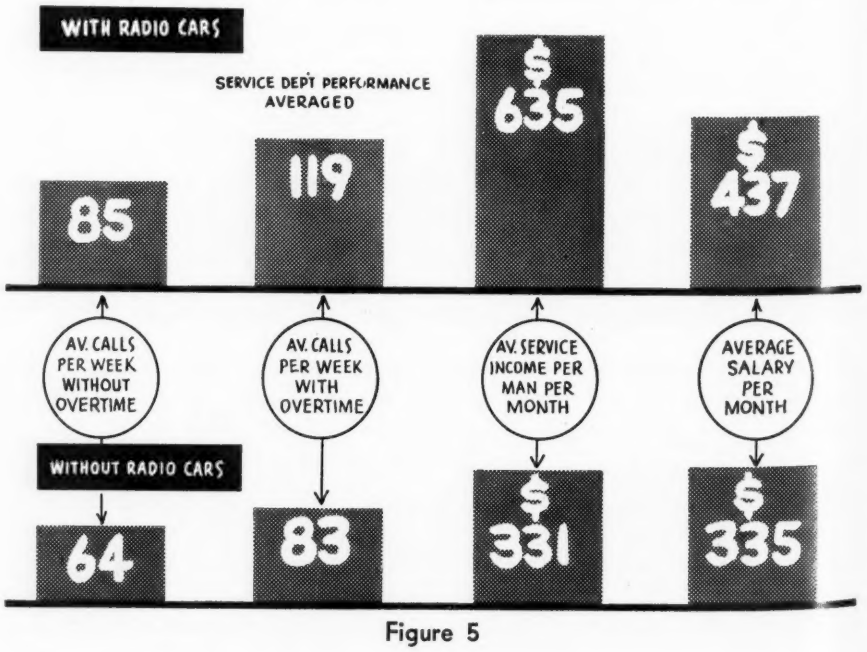


Figure 5

Research helps the Dealer

University of Illinois Work in Heating is very effective

THE GREAT PROGRESS made by the automatic heating industry during the past 15 to 20 years has not been the result of any magic formula or easy road to success. Instead it has resulted from the efforts of many different groups within the industry itself, such as dealers, manufacturers and distributors, all striving to achieve their goals of growth, success and fair profit. Each component has done its bit and done it well, if the health, progress and position of the heating industry today is any indication.

Much of the successful development of the automatic heating industry, especially in equipment design and application has been due to the efforts of a group that receives little attention, minimum publicity and slight recognition. This group is represented by the scientists and engineers who have spent long hours in the tedious and exacting task of heating research. Their exact conclusions have resulted in altered design, newer applications and better understanding of the capabilities of heating equipment. As a result furnaces, boilers, burners, and complete heating systems give better performance and the public confidence in such systems has grown by leaps and bounds. Because of applied research, heating men better understand the capacities of equipment and have greater confidence in selling and merchandising it.

Research is practical

Research has developed a vast mass of practical information for dealers on the flow and measurement of heat, and factors have been developed that enable any salesman to make an accurate and effective heat loss survey. This culminates in the sale of properly sized heating plants that do the job in a manner that is efficient and pleasing to the public. Without the facilities that are, and have been, available for applied heating research, the progress and development of the industry would have been a hit-or-miss affair and many more years would have been required for it to reach the size and public acceptance it has today. The engineers and scientists have hastened its growth by advancing methods that ease the job of the dealers, lower their costs and give them many new selling points year after year.

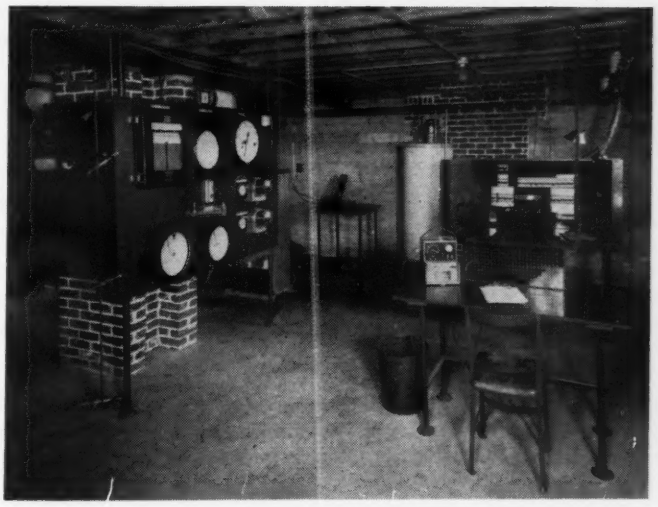


Figure 2A *Instrument panels in the basement of the home devoted to "wet-heating" research.*

While a good deal of developmental applied research goes on in the laboratories of manufacturers, some of the most significant results have come from the work done by educational institutions. With their vast resources, modern laboratories, engineers and trained research personnel, they have been able to technically advance the industry at least 20 years faster than it normally would have progressed.

The University of Illinois, a land grant institution, has been in the forefront of such work. Research and experiments involving fuels for heating go all the way back to 1906 when fuel tests were made with Illinois coals. By 1909, the heating research began to develop an applied or practical aspect with the publication of a paper by J. M. Snodgrass entitled "Fuel Tests with House-Heating Boilers"; this project was sponsored by the Engineering Experiment Station of the University and was the forerunner of a multitude of papers throughout the next 40 years that were to influence every phase of the practical and technical thinking of the heating industry.

This was followed in the same year by "A Study in Heat Transmission," by Clement and Garland. By 1915 and 1917 studies were being made on boiler losses and heat transmission through building materials by Kratz and Willard, names that were to become legendary in the annals of heating. Professor Willard's first paper reporting the

FROM TOP TO BOTTOM:

Figure 1 *This is Warm Air Heating Research Residence #1, built at the University of Illinois in 1924. It was the first such residence ever built for specific heating system test purposes.*

Figure 2 *The I-B-R research home is devoted to research and tests involving steam and hot water heating systems. It was erected in 1940.*

progress in warm air furnace research appeared in 1919.

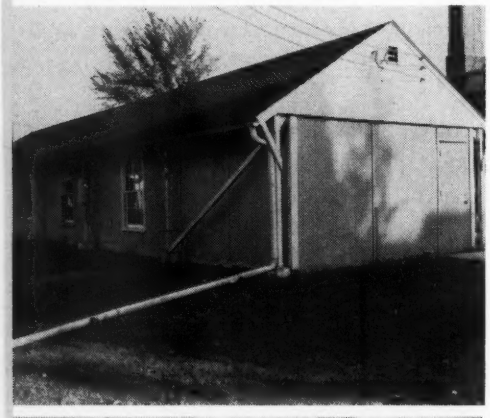
In 1918 Willard went to the National Warm Air Heating and Air Conditioning Association and succeeded in getting that group to assist the experiment station by financially aiding the research projects. This eventually resulted in the building of the home shown in Figure 1, in 1924. This was the first residence ever built for specific heating system test purposes under actual living conditions.

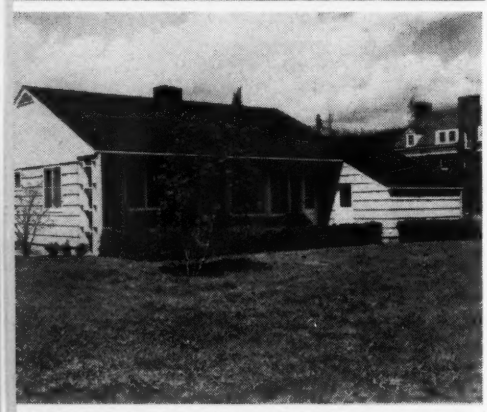
Nothing can better demonstrate the vast time element involved in heating research than noting the dates on which the several papers covering a specific phase of heating research appear. Part I of the paper "Investigation of Warm Air Furnaces and Heating Systems," by Willard, Kratz and Day, appeared in 1921; Part II in 1924; Parts III and IV in 1929, Part V (with Professor Konzo replacing Day) in 1932 and Part VI in 1934. This investigation alone covered a period of 13 years. In 1940 oilheating entered the field with a paper by Kratz and Konzo entitled "Investigation of Oil-Fired Forced-Air Furnace Systems."

Wet heating was strongly in the picture too, and studies and research findings on direct steam radiation were published in 1929 and 1931 with Willard, Kratz, Fahnestock and Konzo all contributing toward the effort. In 1940 the Institute of Boiler & Radiator Manufacturers began to contribute financially to the experiment station and finally sponsored specific research projects in the steam and hot water field.

The I-B-R Research Home, as it is popularly called, cost about $20,000 to build. This sum includes the cost of instruments and scientific equipment required by the many research projects. The house, a brick structure, contains six rooms and is built as scientists believe homes should be built to assure maximum comfort at low cost with walls and ceilings thoroughly insulated. In the walls and ceilings are buried more than 200 observation posts in the form of thermocouples from which records are obtained.

The steam and hot water heating research projects are under the supervision of Warren Harris, Research Professor of Mechanical Engineering. Special short courses in steam and hot water heating are given each year at the University. These are primarily for dealers.





FROM TOP TO BOTTOM:

Figure 3 *This structure containing 4 rooms, is now entirely devoted to research on ceiling and floor slab panel heating.*

Figure 4 *Warm Air Heating Research Residence #2 built by* NWAHACA *in 1947. The system designed into this house includes a warm air ceiling panel system. Comparison tests between different types of warm air heating systems have been conducted here.*

Figure 5 *A typical low cost basementless house built on a concrete slab. Perimeter warm air systems have been studied in this home, known as Warm Air Research Residence #3.*

Figure 6 *Professor Warren Harris is in charge of all steam and hot water heating research at the experiment station.*

At the present time in another all frame structure, (Figure 3), a series of research studies are being made for the purpose of measuring the performance of panel slabs. The heat transferred by the slab in all directions is being measured; also studies are being made to find out the actual measured effects of glass area on panel heating. The effectivity of slab insulation and the effect of floor covering on panel performance is also being measured. Besides all these studies there is still another one on the comparative performance of floor and ceiling panels that is about half completed.

The structure used for these hot water panel heating studies contains four different rooms each devoted to a specific project or research phase. The first room has the entire floor slab and exposed edge insulated. The second room has the exposed edge and inside of the foundation wall insulated. The third room has the conventional L type insulation that extends down the exposed edge of the slab and for 24 inches under it. The fourth room is protected the same as room 3. There are almost 1,000 temperature measuring thermocouples in the building.

Assisting Professor Harris in this work are four full time graduate students. One more project is underway at the research home shown in Figure 2 and this is an "effective heat" study.

A report on the performance of indirect water heaters is now in the report writing stage.

Warm air research sponsored jointly by the experiment station and the National Warm Air Heating and Air Conditioning Association has been a cooperative venture since 1918. Besides the home shown in Figure 1, the association has erected two other homes known as research residences 2 and 3. These newer homes are shown in Figures 4 and 5.

Research in the warm air heating field moved from gravity distribution studies to the forced circulation field in the early 30's and has been continuing in that area ever since. Projects that have been studied and reported on since 1946 are: comparison of warm air ceiling panel systems with conventional register systems; the problem of introducing outdoor air into the return air side of a forced circulation high wall outlet system; perimeter slab heating; comparison of perimeter loop systems; and now progressing, high wall cooling and scheduled for this summer, cooling with a perimeter system.

Warm air research studies are under the direction of R. W. Roose, research assistant professor of Mechanical Engineering. Under him are five full time staff members (graduate students) and about ten students on a part-time basis.

Actually there have been more studies than listed above, and the complete, impressive listing of them for steam, hot water and warm air heating can be found in the list of "Publications of the Engineering Experiment Station." A rough count shows over 50 home heating and cooling research report papers listed therein.

Figure 8 *This laboratory also contains offices for personnel connected with the Small Homes Council.*

A completely different phase of work covering small homes and their construction is carried on by the Small Homes Council of the University of Illinois. The council was set up by the board of trustees to collect and disseminate information limited to single family houses. The council has its own research projects but only operates when asked to do so by a department of the university.

Its publications include a series of non-technical presentations for homeowners to enable them to better understand the research findings and to help in applying them on the consumer level.

Some of the circular series for homeowners include such heating subjects as "Fuels and Burners for Domestic Heating," "Controls For Central Heating Systems," "Heating the Home" and "Insulation in the Home." In fact "Heating the Home" was the second publication to be put out by the council.

Under the direction of James T. Lendrum, AIA, this agency has distributed over 3,000,000 brochures dealing with every aspect of the small home and its construction. Such literature increases the selective knowledge of the homeowner, thereby putting him in a more advantageous position to choose and select intelligently. The result of this is an indirect upgrading of installer, dealer and contract performance. Besides publishing for the consumer, technical bulletins for contractors, dealers and builders are also produced, as are films showing newer techniques in construction.

Figure 7 *Assistant Professor R. W. Roose is in charge of all warm air heating research at the University experiment station.*

Figure 10 *The Small Homes Council's Space Laboratory has movable walls and partitions and families live in it for six months trying out different floor plans and layouts. Although the house has only 864 sq. ft. of floor area, a feeling of spaciousness is achieved by open planning. Note the electric-eye counters which were mounted near doors and traffic lanes. The lower ones were installed primarily to record the movements of children.*

For over eight years this division of the University has been sponsoring short two day courses for contractors and builders. These short courses are in the nature of reports to builders on the work done by the Small Homes Council through the last year.

One of the most interesting of its projects in the space utilization laboratory. This "lab" termed the "most unusual house of the year" is located on the campus and was built by the council as part of a research project sponsored by the Housing and Home Finance Agency. This experimental house or "space use laboratory" as

(*Please turn to page* 170)

Figure 9 *Professor James T. Lendrum is Director, Small Homes Council.*

Part IV: Oilburner control Series

Mercoid Controls

Pyratherm stack Controls have simple, easily understood internal Wiring

by
J. W. Schulz

MERCOID controls have been used on oilburner installations for more than 30 years. The first Mercoid control used for an oilburner was applied to a Hardinge burner in 1921, in the home of Walter Armstrong, at that time the president of the Arcless Contact Company. A diaphragm type steam pressure regulator, made to open and close the dampers of a hand-fired coal boiler, was rigged to a Mercoid lever-arm switch. The switch opened an electrical circuit of the burner when the steam pressure increased to a suitable maximum, and closed the circuit when the steam pressure dropped. Then, in 1921, Mercoid believed implicitly that mercury switches have overwhelming advantages. It still does, for it declares today that the foundation on which Mercoid reputation and business has been built is the one hundred percent use of mercury switches for all electrical contacting. It declares the mercury switch eliminates open arcing, oxidation, corrosion, and pitting and sticking of contacts.

Its exceedingly simple internal wiring makes the Mercoid stack control panel, which bears the trade name Pyratherm, easy to study. The internal wiring of this panel is simple even though it includes a low-voltage circuit to permit the use of a low-voltage room thermostat.

Diags. 1 and 2 show the simplicity of the Mercoid Type JM Pyratherm, made for oilburners to be operated with continuous ignition. This stack control panel contains only these electrical parts:

A. Two mercury-tube type switches, labeled safety switch and motor switch in the diagrams.

B. Two coils, one the primary and the other the secondary of a transformer-relay arrangement.

C. A heater coil.

The Type JM Pyratherm serves these functions on an installation having, for example, a low-pressure or high-pressure gun type burner:

1. It provides ignition-failure protection when the burner first starts.

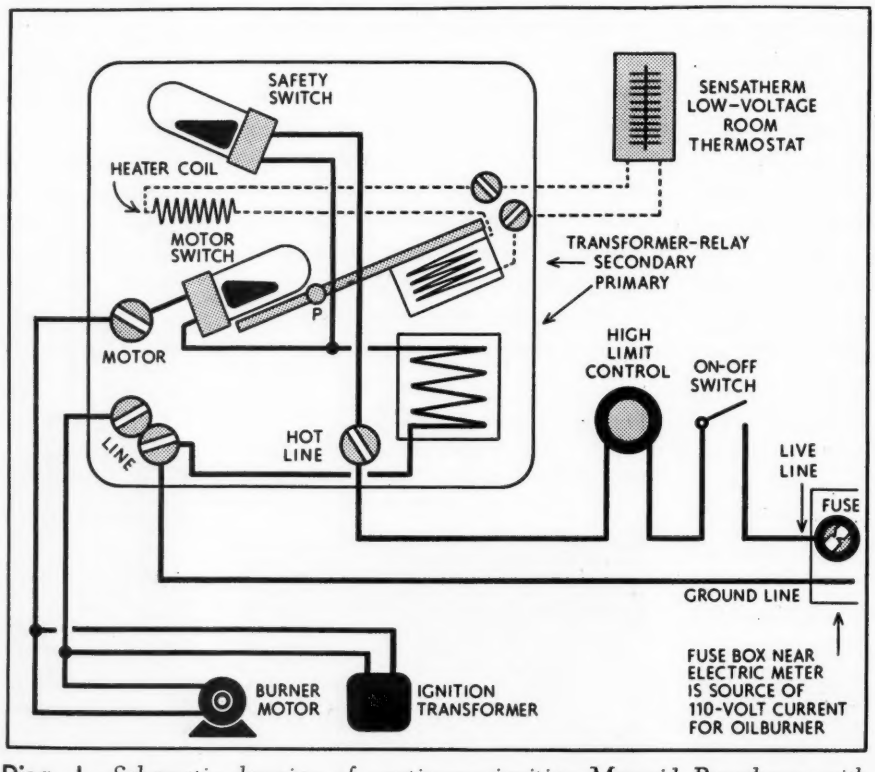
2. It provides flame-failure protection during normal operation of the burner after the flame has lighted properly.

3. It provides a low-voltage thermostat circuit, thus permits the use of the low-voltage type room thermostat preferred by most oilburner dealers.

4. It protects against low-line voltage in the house in this way—it prevents the burner from starting when the voltage in the house is lower than it should be, and when therefore the ignition transformer on the burner would give no spark or a feeble spark.

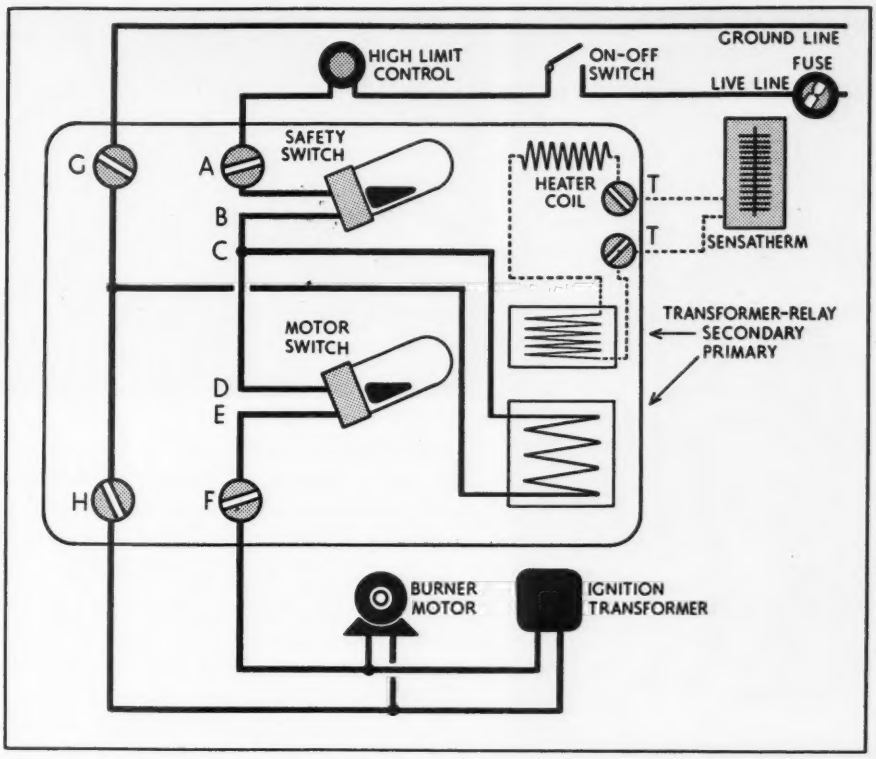
5. It provides power failure protection by causing the burner to stop long enough, following even momentary interruption of house current, for the control panel to get ready to provide the ignition failure protection described in item 1.

To serve the first function listed above, provide ignition-failure protection, the Type JM Pyratherm provides what many control experts term a "try for ignition period." Suppose the smokepipe has cooled somewhat since the burner last operated. That is, suppose the burner has been idle for at least five minutes since it last ran. Then the heat-sensitive bimetal helix of the Pyratherm, located in the smokepipe, has reported the drop in smokepipe temperature to the safety control panel and put the panel in condition for a burner start-up. The smokepipe bimetal helix has to cool a bit following a normal operating period of the burner—otherwise the Pyratherm will not permit the burner to try to start. This cooling of the smokepipe bimetal helix makes the panel ready for its "try for ignition period."



Diag. 1—*Schematic drawing of continuous-ignition Mercoid Pyratherm with coils, switches, and terminals approximately in the positions they occupy in the actual panel. The two mercury switches are in opposite positions, the terminal end of the upper switch being towards the right while the terminal end of the lower switch is towards the left. The result is that tipping the control too far causes one of these switches to remain open and prevents burner operation.*

Consider the smokepipe cold, then, to make things simple. The burner starts. If the helix in the smokepipe does not feel heat from the oil flame within two minutes, the safety switch (see Diags. 1 and 2) opens and stops the burner. Mercoid instructions indicate the safety timing is factory set for approximately two minutes. This timing may be shortened, the instructions say, but for best results it should not be made shorter than 90 seconds. Once open, the safety switch cannot close automatically or by itself; the burner remains idle until someone re-sets the control by turning clockwise a little knob that juts out through the cover of the Pyratherm.



Diag. 2—*Simpler wiring diagram of the continuous-ignition Pyratherm. All wiring is series type with one exception; the primary of the transformer, the burner motor, and the ignition transformer are wired in parallel because each of these three current-consuming devices requires line voltage. In both Diag. 1 and Diag. 2 the secondary coil of the transformer-relay is in its upper position with the result that the motor switch is closed.*

Flame-failure protection, listed earlier as the second function of the Pyratherm, means stopping the burner if during its normal operation the stack temperature drops for any reason. The Pyratherm shuts the burner off "on safety" or "on safety lock-out" (these terms are used by many servicemen) in case of a drop in stack temperature sufficient to indicate erratic operation of the burner. With this stack control panel, there's no attempt to re-start or re-cycle the burner automatically following shutting it off because of flame failure or a decrease in stack temperature during normal operation of the burner. As will be explained in detail later in this article, the burner is turned off quickly after the bimetal helix reports to the panel a drop in stack temperature—the time interval involved is shorter than the "try for ignition period" for which the control panel has been adjusted.

Both the third and fourth functions listed earlier for the Type JM Pyratherm (low-voltage thermostat circuit and protection against low line voltage in the house when the burner tries to start) are the results of the Pyratherm's having the unusual transformer-relay shown in the diagrams and photographs. Details on the transformer-relay will come later in this article.

The fifth function, providing power failure protection, relates to what has been described already. Before the Pyratherm can start the burner, its bimetal helix located in the smokepipe must cool somewhat in the manner which was explained. Thus the panel will not try to start the burner until the panel is ready for its "try for ignition period." This holds true even if the house current goes off for a few seconds and stops a burner which was running normally.

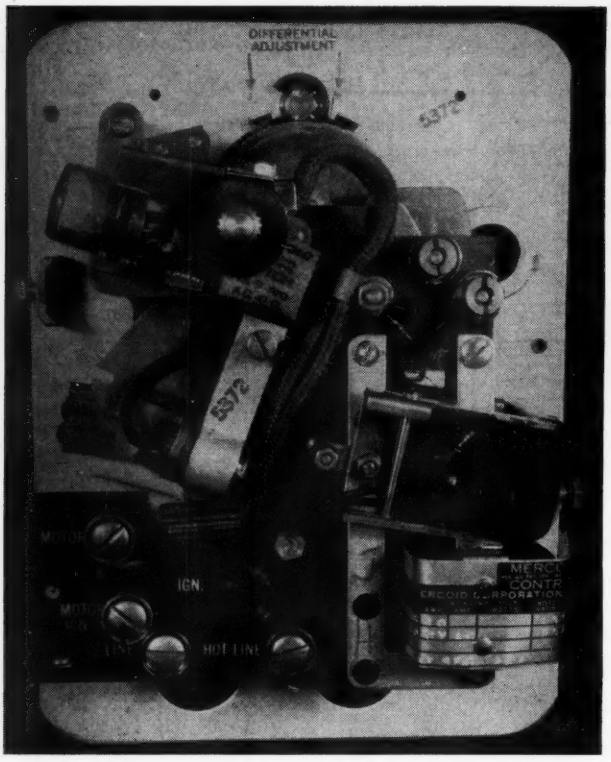
You can easily demonstrate this power failure protection feature. Start up a burner connected to a Mercoid Pyratherm. Let it run five minutes or longer—long enough to heat the smokepipe considerably. Then snap the oilburner main switch off. The burner stops instantly. Snap the main switch on again immediately. The burner does not start instantly. It waits until the smokepipe bimetal helix of the Pyratherm cools a bit and sets up the Pyratherm for a "try for ignition period."

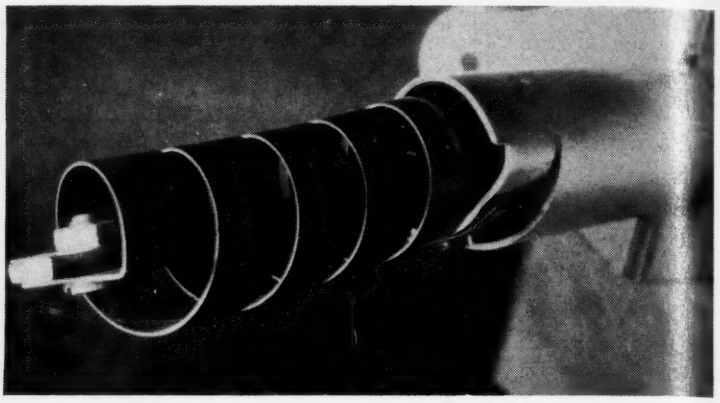
Demonstrating this power failure protection feature helps bring out the point that this control panel checks on the proper operation of its bimental helix, and the parts moved by this helix, each time the burner starts. Imagine that the shaft which is turned by the bimetal helix cannot turn as it should, perhaps because of tinkering on the part of a burner owner or bungling of an incompetent serviceman. The shaft is stuck in one position, either the cold-smokepipe position or the hot-smokepipe position.

First, with the shaft stuck in the cold-smokepipe position, the burner can start, for this is the proper position for "try for ignition." However, the burner will not run long, once started. Because the shaft is stuck in the cold-smokepipe position, the safety control panel will turn off the burner "on safety" in about 90 seconds or two minutes. It will do this, of course, even though the flame burns properly and the smokepipe temperature increases properly.

Second, with the shaft of the bimetal helix stuck in the hot-smokepipe position by a tinkerer, the oilburner cannot start. When not in its "try for ignition" condition, the Pyratherm will not permit the burner to start. The safety control panel permits the burner to start only when the smokepipe bimetal helix and the parts it moves are in the cool-smokepipe position.

Diag. 1 shows the internal and external wiring of the Mercoid Type JM Pyratherm through use of an arrange-





Left: *Close-up of Pyratherm. Transformer-relay is in lower right-hand corner. Primary coil of transformer-relay is behind the control's nameplate. Secondary coil is black, and is above primary coil. Safety switch and its re-set device (a toothed wheel) are near upper left-hand side of control. The instruction sheet that comes with this panel tells how to adjust it for low, medium, and high stack temperatures. Good servicemen use a stack thermometer to ascertain the smokepipe temperature, then set the control to match it.* **Right:** *Bimetal helix that extends into the smokepipe to give the Pyratherm information about the temperature of the smokepipe gases.*

ment similar to that used in the Mercoid instruction sheets to show this wiring. Compare Diag. 1 with the accompanying photograph of the Type JM Pyratherm with its cover removed. In Diag. 1, the wiring terminals are approximately in their actual positions on the panel. They are designated in the drawing as they are on the actual panel. Mercoid men take pride in the fact that in the Pyratherm the terminal markings are spelled out clearly with the result, they say, that an installation man or serviceman does not have to remember that one number corresponds to live line, another to ground line, another to line to motor, and so on. In Diag. 1, the electrical parts of the panel, that is the switches and coils, are fairly close to their actual locations.

The fuse box is the source of the line-voltage current for the oilburner. The ground line runs through the Pyratherm as the diagram shows, then goes to the burner motor and ignition transformer. This follows the principle mentioned several times in the early articles of this series, regarding running the ground or neutral line directly to the current-consuming devices (here, the motor and ignition transformer). The ground line must have no switches or controls in it.

The Mercoid Pyratherm has two "line" or "input" terminals. As one is marked "Hot Line" and the other is marked "Line," any man capable of wiring an oilburner installation should be able to reason out that the live input wire should be connected to the terminal marked "Hot Line," while the ground or neutral input wire should be connected to the terminal marked simply "Line."

Trace through a few simple wires in Diag. 1, and you learn that with line voltage on the input terminals of the control panel and the safety switch closed, the primary coil of the transformer-relay has line voltage across it. This primary coil is stationary and in the actual control is behind the control's nameplate.

Above the primary coil, in both Diag. 1 and the actual control, is the secondary coil of the transformer-relay. This is fastened to a bar, shown roughly in the drawing, in a manner that permits the secondary coil to swing upwards. Point "P" in Diag. 1 represents the pivot that permits the bar to move. The motor switch also is fastened to this bar with the result that when the secondary coil is low, close to the primary coil, the motor switch is open.

Many men who study it for the first time find a bit of magic in the transformer-relay used in Pyratherm stack control panels. The reason for this is that connecting together the terminals of the secondary coil causes this coil to move upwards. The action starts instantaneously, but the coil seems to float upwards silently and mysteriously. Magnetic lines of force are doing the trick, of course. Moving upwards, the coil causes the motor switch to close and start the burner. To top off this action which is mystifying and fascinating to many oilburner enthusiasts, low-voltage current flows through the circuit of the secondary coil when its terminals are connected together and when, of course, line voltage is on the primary coil. Thus with the thermostat circuit in Diag. 1 closed and the burner running, low-voltage electricity flows through the heater coil shown in the drawing and raises its temperature considerably. The heater coil is always hot when the burner motor is running.

In the Pyratherm a bimetal loop arrangement is used to keep the safety switch latched "on" when the burner is not in trouble, and to permit the safety switch to drop to its "off" position when this switch should stop the burner. The heater coil swings on a pivot so that it travels through an arc. It is moved by the action of the bimetal helix located in the smokepipe. When the smokepipe helix is in its cool-

smokepipe position or starting position, the heater coil is within the bimetal loop arrangement used to keep the safety switch latched "on."

If the burner starts and the heater coil remains in the bimetal loop because the smokepipe gases remain cool as the result of ignition failure, within approximately two minutes the bimetal loop receives sufficient heat from the heater coil to cause the safety switch to drop, opening the circuit. The burner is then off "on safety" or off "on safety lock-out."

If the burner starts and the smokepipe gases become hot, as they should, the smokepipe bimetal helix goes into action and lifts the heater coil out of its starting position, removing it from its pocket in the bimetal loop that keeps the safety switch "on." Because the bimetal loop is not heated by the heater coil, now far from it, the bimetal loop remains cool and does not permit the safety switch to trip to its "off" position.

Mercoid declares that its safety shut-off arrangement is unique in that the heater coil receives current continuously when the burner is running—this heater coil is not shunted or disconnected when the burner is running and the flame is burning properly. This, Mercoid says, provides suitable safety timing (90 to 120 seconds) for proper trial-for-ignition during burner starts, but provides much shorter shut-off timing for flame failure following proper burning. Flame failure or any appreciable drop in stack temperature during operation of the burner causes the heater coil, which already is well heated, to drop into its pocket in the bimetal loop that normally keeps the safety switch closed. The result is relatively rapid stopping of the burner motor.

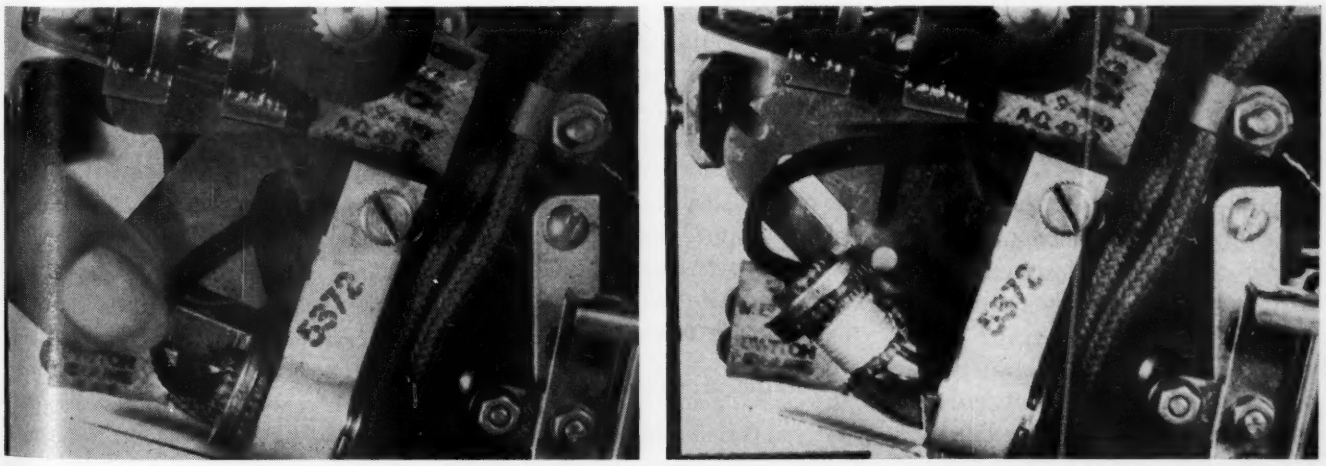
Every oilburner dealer who is determined to teach his men how to service the most widely used burners and controls should (1) have the men study and learn all about accompanying Diags. 1 and 2, and be able to draw these diagrams by heart, then explain them, (2) buy the men at least one Mercoid Type JM Pyratherm, for detailed study in the shop to start out and later in actual use on an installation, (3) obtain a complete set of the excellent sales literature and instructions on Mercoid controls available for the asking.

Insead of using for study the Type JM Pyratherm (which provides continuous ignition), a dealer may prefer to use the Type JMI Pyratherm. Of the intermittent ignition type and having just one more mercury tube than the Type JM, this is similar in dozens of ways to the Type JM. It has the advantage, of course, of being able to be wired for either intermittent ignition or constant ignition.

Diag. 2 is simplified compared to Diag. 1, thus shows clearly the exceedingly simple circuitry of the Type JM Pyratherm. Follow through the ground line from the source of line-voltage current (see "Ground Line" label near the fuse) to the burner motor and ignition transformer. As Diag. 1 shows, terminals "G" and "H" of Diag. 2 actually are side-by-side in the actual control, and in the actual control are both labeled "Line."

In Diag. 2, notice the almost exclusive use of series type wiring. This starts out with the fuse, on-off main switch, and high limit control all being wired in series to bring live-side line-voltage current to input live terminal "A" of the control panel. Within the panel, the safety switch comes first, then the motor switch—both being in series, nothing could be simpler.

No wires connect the secondary of the transformer-relay to the primary coil; the coupling is purely magnetic, it is not electrical. The secondary coil



Left: *Finger points to location of the heater coil with the coil in its pocket inside the bimetal loop which when cool keeps the safety switch in its "on" position. At the upper end of the bimetal loop is the adjustment screw used to shorten or lengthen the safety timing. The safety timing arrangement is compensated for ambient temperature. That is, set it for 90-second safety timing and it provides the same 90-second "try for ignition period" whether the control and basement are extremely cool or extremely hot. Right: Because the smokepipe bimetal helix has been heated, the heater coil has been swung out of its pocket by the turning of the shaft moved by the smokepipe helix. Here the heater coil cannot raise the temperature of the bimetal loop and cause the safety switch to drop open. With the heater coil out of its pocket, as it is shown here, the burner is operating normally—the smokepipe is hot. An appreciable drop in stack temperature, indicative of improper burning, will cause the heater coil to drop rapidly into its pocket. Already hot (it is hot at all times when the burner is running) the heater coil will cause the safety switch to open in less time than the start-up safety timing for which the control is set.*

provides 24-volt current for the room thermostat circuit. The almost exclusive use of series wiring, exceedingly simple, shows up again in the low-voltage thermostat circuit. Here, the secondary coil of the transformer-relay simply is wired in series with the heater coil and the room thermostat (or with another control, used in place of a room thermostat).

Must be wired in Parallel

The only departure from series wiring is caused by the need to have line-voltage current across (1) the primary coil of the transformer-relay, (2) the burner motor, and (3) the ignition transformer. These three current-consuming devices are wired in parallel of necessity. They can't be wired in series!

Notice in Diag. 2 that opening the safety switch breaks the circuit between "A" and "B," and takes current off the primary coil that connects at junction "C." When the thermostat circuit closes and the burner starts, current advances from point "D" to points "E" and "F."

Diag. 2 helps bring out a point which Mercoid enthusiasts find tremendously important. When the safety switch opens, it breaks the circuit between points "A" and "B." This cuts off all live-line input current to the electrical parts within the panel. Thus it is as effective as opening the main switch in the live line, opening the switch in the high limit control, or removing the live-line fuse. Mercoid men like to hammer this point home: Because the Pyratherm's safety switch is in the line-voltage live wire immediately where this enters the control, you cannot run the burner with the safety switch in its "off" position, not even if you block the transformer-relay in its "on" position using a wooden wedge. These men boast of extreme safety, which they declare results from (a) use of a relay of unique design, highly unlikely to stick in its "on" position with the thermostat circuit open, plus (b) safety switch wiring of the line-voltage type, which permits the safety switch to stop the burner even with the relay stuck or blocked in its "on" position. One more point related to safety: If the heater coil burns out, the burner cannot start because the thermostat circuit remains open.

The transformer-relay in the Pyratherm, which can be described accurately as a repulsion-type relay, gives Mercoid enthusiasts much to admire. It is simple and compact, to start out, for it uses but two coils or windings to do the work often done by two separate units (a low-voltage transformer and a low-voltage relay) having three coils (primary and secondary transformer coils, and low-voltage coil in the relay). Mercoid enthusiasts do like to dwell on the simplicity of the Pyratherm. The transformer-relay in the Pyratherm undoubtedly is simple.

Next thing about their transformer-relay, Mercoid enthusiasts are apt to point out, is the fact that the movement of the secondary coil is caused by magnetic lines of force which smoothly and silently push the secondary coil upwards and away from the primary coil. The motor switch silently tips as this happens, starting the burner.

The users of the Pyratherm often go on in this fashion extolling this transformer-relay: "Gravity drops the secondary coil silently when the thermostat circuit opens; no spring loading to make noise or get out of adjustment; no springs to deteriorate or weaken. No load-carrying contacts or holding contacts to stick, chatter, arc, or burn. No metal armature surfaces to give trouble sticking, corroding, or cause complaints about loud humming. No problems with residual magnetism holding in the relay. And no concealed contacts that can give trouble difficult to diagnose and almost impossible to corect on-the-job."

Sensatherm room Thermostat

If you permit a Mercoid control enthusiast to spread out his talking points in the fashion indicated above with relation to the Pyratherm's transformer-relay, he most certainly will extend himself on the unique advantages he finds in the Mercoid low-voltage room thermostat, which carries the trade name of Sensatherm. It turns out the Sensatherm has a big story behind it, all to do with Mercoid's effort to develop the most sensitive room thermostat in the world.

The Sensatherm is the result of Mercoid's deciding to produce a thermostat of exceedingly small mass, which corresponds to little weight, and have this contain an enormous amount of temperature-sensitive bimetal. Mercoid added to this formulae the principle that the switch in the thermostat must (a) be of the mercury type for which dyed-in-the-wool Mercoid men will accept no substitute, and (b) be opened and closed with the use of an absolutely minimum amount of energy. Tucking about 18" of bimetal of little mass into the Sensatherm and having this open and close a special, stationary mercury switch with the help of a magnet produced, according to Mercoid, an operating differential of plus-or-minus ½° F.

The big story behind the Sensatherm is too big to be told here, for it contains dozens of details on the advantages and disadvantages of "artificial stimulation." It compares the use of electrical heaters in room thermostats with different ideas which are preferred by Mercoid designers.

Other Makes to be covered

This article on Mercoid oilburner controls aims to cover both technical features and the type of performance which Mercoid enthusiasts declare result from the use of these features. The pattern used in preparing this article will be used in preparing the later articles in this series on oilburner controls. The aim is to cover all the leading makes and models of oilburner controls. Any enthusiasm regarding control performance that appears in these articles is the result of the overall excellent performance of modern oilburner controls in general. Although burner controls are necessarily covered one make at a time in this series, these articles must not be construed as an effort to evaluate or compare different makes of controls. The stressing of a particular feature in a particular control does not indicate other controls do not have the particular feature, or substitute features which may be better, or features of entirely different types which are of great advantage.

Servicing central cooling Units

Practical Aids for the Serviceman concerned with residential Airconditioning

by

Maurice R. Eastin*

This short series of articles will contain practical information on what you need to know about the mechanical and electro-mechanical refrigeration equipment used in residential airconditioning systems.

HEAT CAN neither be created nor destroyed. Heat machines merely exchange or transfer heat. The science of refrigeration is based on natural laws but the heat units are the creations of men—they were made as men made dollars and inches. The British thermal unit or Btu is defined as the amount of heat necessary to raise the temperature of one pound of water one degree Fahrenheit. This is not a perfect definition but is accurate enough for practical uses.

The ratio of the amount of heat necessary to raise the temperature of a substance to the amount of heat necessary to raise an equal weight of water is known as specific heat. The specific heat of Freon vapor is .15 and that of Freon liquid is .24.

The Fahrenheit temperature scale will be used throughout this article. The heat added to or removed from a substance that caused its temperature to change is known as sensible heat. The heat required to be added to or removed from a substance to change its state (without changing its temperature) is known as latent heat.

A simple illustration showing a latent heat change follows: Place a pan of tap water on the stove and in the pan place a thermometer. Light the burner under the pan and watch the temperature rise as heat is added. The temperature will keep rising until it reaches 212° F. Now the discovery. You continue to add heat but the temperature does not rise above 212° F. The reason is that you are adding heat to change the state of the water from liquid to vapor (steam).

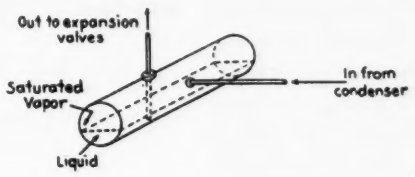


FIG. 1—*Freon receiver.*

The unit of capacity used in refrigeration is the ton, which is defined as the equivalent of the amount of heat removed by melting one ton of ice in one day. This amounts to a rate of 288,000 Btu in 24 hours or 12,000 Btu per hour.

A heat law always to remember is that heat flows from the warmer to the cooler body.

The human race lives at the bottom of an ocean of air. At sea level the pressure of that ocean of air is about 14.7 pounds per square inch. Gage pressure is that pressure in excess of atmospheric pressure—hence, at sea level under normal conditions, 200 pounds gage pressure if converted into absolute pressure or actual pressure would be 14.7 plus 200 or 214.7 A or absolute pressure. Usually only gage pressure is used.

Liquid Boiling Point

Liquids have definite boiling point temperatures depending on the pressure above the liquid. Vapor existing at this boiling point temperature is said to be saturated. Vapor existing at a temperature above that of the boiling point for any given pressure is said to be superheated. As long as liquid and vapor exist in the same confined space the pressure of the vapor or rather the pressure within this confined space is affected by the temperature alone.

As an illustration, take the boiler of a locomotive. Therein water as liquid and as vapor both exist. This vapor or steam is really saturated vapor, under the same pressure and temperature as the water. But at 220 lb. pressure, the temperature of the steam and the water is not 212, but 390° F., the boiling point of water at that pressure—and water has a definite boiling point for each pressure. If this vapor at the same pressure were piped out over a hot area (as in the superheater on a locomotive) and its temperature rose above the boiling point temperature at that pressure, it would be superheated vapor.

Now apply these principles to Freon, the substance which is used as the refrigerant in residential compressor-type airconditioning units. Freon has a definite pressure-temperature characteristic and its properties in the saturated vapor state are shown in the table.

Freon Boiling Point

At atmosphere pressure (14.7 lbs. pressure), Freon boils at 21.7° F. below zero—quite a difference from water's 212° F. above zero. The table on page 69 shows that Freon boils at 32° F. at 30 lbs. pressure and at 44° F. at 40 lbs. pressure. These pressures are important since in the evaporator of the refrigeration equipment used for airconditioning Freon normally exists at those pressures.

Mechanical refrigeration is based on the fact that a substance (in this case Freon) can be vaporized (boiled) at any desired temperature merely by controlling the pressure above it.

The latent heat of one pound of Freon is approximately 66 Btu and as stated before, the specific heat of Freon vapor is .15 and that of Freon liquid .24. Therefore, the best bet is to make use of the latent heat rather than the specific heat of Freon.

In the evaporator of a residential airconditioning refrigeration unit for each pound of Freon vaporized an amount of heat equal approximately to the latent heat is absorbed from the air of the home. The amount of heat absorbed by each pound of Freon as it

*Sales Manager, Control Div., Perfex Corp., Milwaukee, Wis.

goes through the evaporator is known as the refrigerating effect. Care must be taken to distinguish between the total amount of heat absorbed by the Freon in going through the cycle and the refrigerating effect.

Before discussing the refrigerating machine let us outline the problem. We must not only control the conditions under which Freon changes from liquid to vapor but we must do so under certain limitations. Since it is not possible to control the atmospheric temperature of the air, it must be used as it is to remove heat from the condenser, or water can be used to cool the condenser.

As it is not normally possible to control the heat load on the cooling coils the maximum load can usually only be estimated.

Refrigeration cycle Processes

As the mechanical refrigeration system is based on the closed cycle of operation, the age-old question is asked, "Which came first the chicken or the egg?" In order to explain the cycle of operation the receiver tank will be regarded herein as the starting point. This is shown in Figure 1.

Freon liquid and some saturated vapor is forced from the condenser into the side of this small tank by the action of the compressor. If the work of the compressor and the condenser has been performed properly practically all of the Freon entering the receiver will be in the liquid form or in a transition stage. This is more accurately described as drops of liquid Freon surrounded by saturated vapor that will form into drops of liquid on contact with the walls of the receiver. The temperature of this liquid will be equal to or lower than the saturation temperature (or the boiling point) of Freon for the pressure in the receiver. Since the liquid will be heavier than the vapor it will settle to the bottom of the receiver.

The outgoing pipe from the receiver, known as the liquid line, is purposely placed with its entrance near the bottom of the receiver tank so that the outgoing line will always receive liquid and not a combination of liquid and vapor. The importance of this fact will be evident when the next step in the study of the endless travels of the bit of Freon chosen to be traced here is observed.

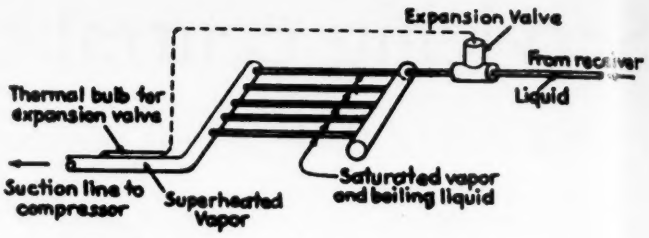


FIG. 2(a)—*Simplified diagram of an evaporator.*

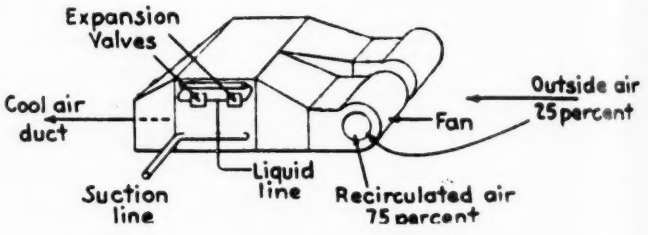


FIG. 2(b)—*Evaporator housing showing location of expansion valves and air circulation fans.*

The liquid Freon goes up through a small copper pipe known as the liquid line under a high pressure of from 125 to 220 lbs. per sq. in. This liquid Freon under high pressure flows to a nozzle-like valve with a small opening or orifice known as the expansion valve. From the high pressure on one side of this small opening the Freon flows through to a low pressure enclosure known as the cooling coil or evaporator.

This sudden change in pressure brings about an equally sudden change in the state of the Freon. It starts to change immediately from a liquid to a vapor. Why? Under conditions on the high pressure side of the opening or expansion valve the Freon temperature was held below the boiling point temperature because the temperature of the air surrounding the piping on the "high" side was from 70° to 100° F., and the pressure in this part of the system is designed to be always high enough to hold the boiling point temperature of the Freon above the temperature of the atmosphere. That is a stable condition.

But this stable liquid Freon suddenly enters an enclosure of lower pressure—30 to 40 lbs. per sq. in. The temperature of the walls of this enclosure is affected by the flow of air over them at a temperature of about 80° to 90° F. In a flash this liquid Freon has in effect been put on a hot stove and it immediately boils. Now in a stove the heat comes from a flame, but in this case the heat comes from the air circulated around the evaporator coils by the blower fan. Since liquid boils at a definite temperature dependent on the pressure above it, the temperature of the liquid and vapor mixture in the enclosure will not rise until all of the liquid is boiled away.

The temperature of the coils or rather the Freon within the coils can be found easily by looking up the saturation characteristics of Freon in the table. For any pressure within the coils the boiling point temperature of the Freon can be read opposite it in the table. That is the temperature of the coils.

Suction Pressure

This temperature is regulated by maintaining the suction pressure so that the boiling point is always reasonably below the temperature of the surrounding air, and so that heat will always flow at a reasonable rate through the metal of the coils and into the Freon itself.

As the Freon moves through the evaporator coils the unstable liquid boils vigorously absorbing during its flow the heat from the surrounding air. As the Freon nears the end of its path in the evaporator it is completely boiled into a vapor with no liquid present, but since the coils are located in a stream of air as the Freon is completely evaporated, there is only one logical result. The vaporized Freon absorbs more heat and becomes superheated.

The expansion valve is controlled by a thermostatic bulb that controls the

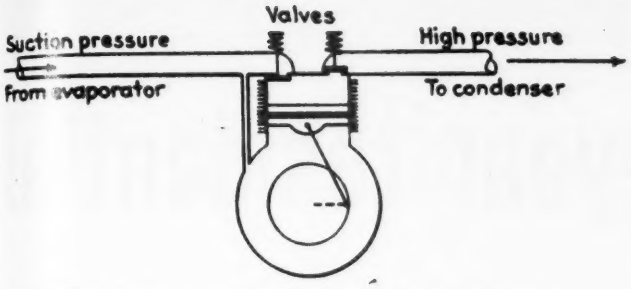


FIG. 3—*Cross-sectional diagram of a compressor.*

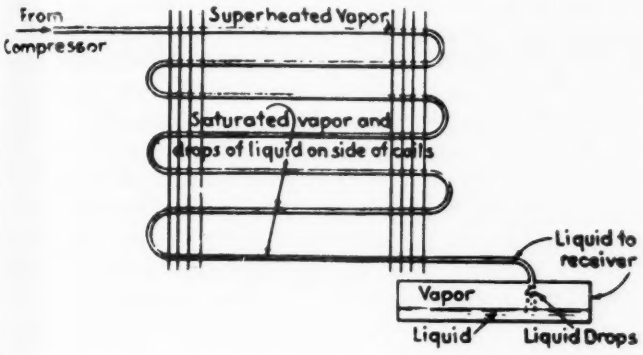


FIG. 4(a)—*Simplified diagram of a condenser, which extracts heat from the refrigerant and reduces it from a vapor to a liquid for storage in the receiver.*

superheat. In most applications the valve is controlled to allow approximately 10° of superheat as the Freon leaves the evaporator. The expansion valve will be discussed in detail later.

The superheated vapor continues to take on heat as it flows down the suction line to the compressor. As it enters the compressor the vapor has about the same temperature as the surrounding atmospheric air. The Freon has changed from (1) liquid as it enters the expansion valve to (2) boiling liquid and saturated vapor mixture within the greater part of the evaporator to (3) superheated vapor in the last evaporator coils and in the suction line.

The compressor, the heart of the mechanical refrigeration equipment used in most residential airconditioning, is the mechanism that drives, pushes and pulls the Freon through its whole path of travel. Figure 3 is a diagram of the compressor. Details of this device will be covered later.

The following comments are not confined to any one kind of compressor and it is assumed that the compressor has been designed properly for its use. As the Freon enters the intake manifold of the compressor it is at a pressure from 30 to 40 lbs. at atmospheric temperature. It is drawn into the cylinder or cylinders of the compressor on one stroke of the piston. On the second or return stroke the Freon is compressed, and as the piston almost reaches the end of the cylinder in its travel, the outlet or exhaust valve opens allowing the compressed vapor to enter the high pressure side of the system. At this point the system is basically engaged in an exchange of heat, and under such circumstances the smaller quantity of heat there is to get rid of the better.

It would be very nice to say that the Freon was compressed in the compressor from 30 to 40 lbs. pressure at atmospheric temperature to about 150 lbs. pressure without any heat being added since the objection is to get rid of heat at this point and not absorb it. But, since work was done on the Freon in compressing it and since the state of the Freon has not changed from the superheated vapor during the compression this expenditure of energy results in adding heat to the Freon evidenced by a rise in temperature.

Due to the increase in pressure alone and the corresponding decrease in volume, a 20° or 30° rise in the temperature of the Freon vapor from the intake valve to the discharge valve could be expected. Actually, there is considerably higher rise in temperature and this is due to both mechanical and internal friction created during the compression cycle and the harder the compressor works the greater the temperature rise will be.

The superheated Freon is forced into the condenser or radiator as it may be called. The condenser causes the Freon to come into contact with one side of a metallic surface, the other side of which is exposed to air at atmospheric temperature.

The compressor drives the Freon through the system but, in truth, it does far more than that. The Freon absorbs heat from the air that will be sent into the rooms and also gains additional heat energy on its travel from evaporator to the compressor. The only worthwhile heat gain took place within the evaporator and the heat gain on the trip down the suction line was unwanted. The problem now is to get rid of the heat.

Since heat flows from the warmer to the cooler body it must be remembered that the Freon must soon be cooled and changed back to a liquid so the cycle can be repeated. This can be done normally by using air or water.

The compressor has the function both of circulating the Freon and of raising its pressure to such a point that it can be liquefied or condensed by air or water cooling. This compression involves taking the Freon at atmospheric temperature at the suction side of the compressor and causing its temperature to rise by crowding it into a smaller space.

Last Step of Process

Now for the last step of the process. The Freon is now ready to give away the heat that it has absorbed from the room air and this can be done best by changing the state of the Freon from a vapor state back to the original liquid state. See Figure 4 for a diagram of an air cooled condenser.

As the vapor leaves the discharge valve of the compressor it has been considerably superheated by the action of the compressor in reducing the volume of the vapor and at the same time it has been also superheated by the friction of the machine and the wasted energy of the process.

The vapor enters the condenser coils in this superheated state and soon loses its superheat in the first few coils of the condenser by radiation and conduction to the air or water flowing around the condenser coils. The loss of this superheat of the vapor is, of course, necessary to bring the vapor down to the temperature at which it

Presenting Honeywell's

New all-year residential

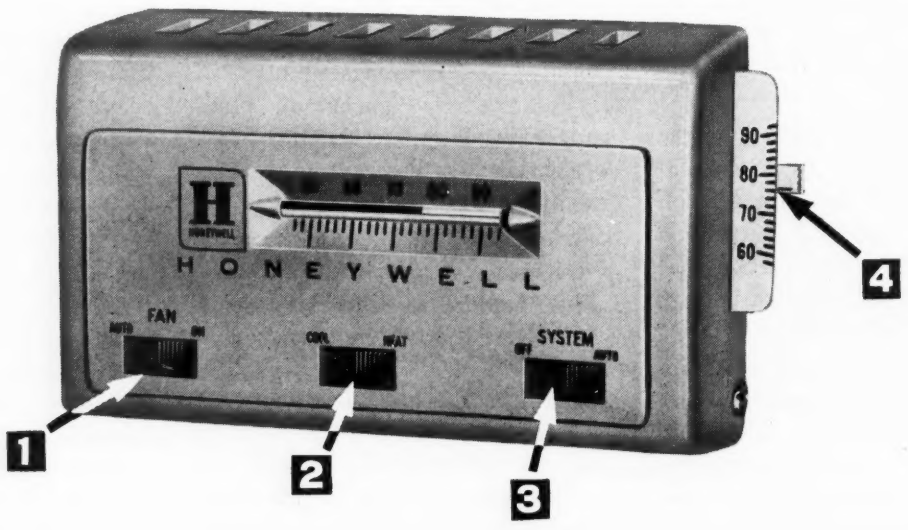
The *first* standardized Control Package for residential heating and cooling systems is now available!

Designed and engineered by Honeywell, it consists of the completely new T830 combination heating-cooling thermostat and the W203 control panel, which provide complete year-round control of the heating and cooling system in a *single pre-assembled* unit!

Honeywell's Air Conditioning Control Package is designed for universal application, either on a combination heating-cooling unit, or on an "add-on" cooling unit for an existing heating plant. It controls heating and single or two-stage cooling unit with 2, 3 or 5-ton capacity, single phase, and up to 7½-ton capacity, three phase.

It's designed to greatly simplify installations and wiring procedures and to ease your stocking problem, because much of the accessory equipment is pre-installed and wired right in the panel.

Improve your air conditioning work with this fine Honeywell Package. It's easier to install—there's less equipment to stock—and you will be giving customers a fine quality system that will perform accurately and dependably. Be sure to specify the new Honeywell Control package when you order your air conditioning units. For separate thermostats and panels contact your wholesaler or one of Honeywell's 104 sales offices. If you prefer information by mail, send the coupon below for a complete catalogue.



New T830 Year-Round Air Conditioning Thermostat

Here it is—Honeywell's new *combination heating-cooling* thermostat that can be a major selling feature on your year-round air conditioning installations.

This remarkable new precision thermostat allows the homeowner to *completely control the heating, cooling and fan units of his air conditioning system from his living room!*

Dealer advantages are just as outstanding! Honeywell designed the T830 for simple installation and easy service. Although completely new and modern in design, the T830 utilizes a thermostatic bimetal element that's been proved over the years and thus is familiar to every service man.

This new thermostat comes in three different models: T830A—heating and one-stage cooling (with Honeywell W203A panel); T830B—heating and two-stage cooling (with W203B panel); T830C—direct heating and one-stage cooling control without panel.

1. Fan Control

—allows choice of "automatic" fan control or continuous ("on") fan operation.

2. Cool-heat

—permits owner to select heating or cooling—*whenever* he wishes.

3. System Control

—allows owner to turn both systems off from his living room.

4. Temperature Selector

—new type temperature slide allows easy selection of desired temperature.

air conditioning control package

New Honeywell Heating-Cooling Control Panels

These new Honeywell panels provide complete year-round control of the heating and cooling system in a single, pre-assembled unit.

Both panels have terminal connections for accessory equipment such as damper motors, solenoid valves and refrigeration pressure controls. Each is 12″ high x 9½″ wide x 4¾″ deep. This compact size makes either panel easy to mount in most any cooling cabinet.

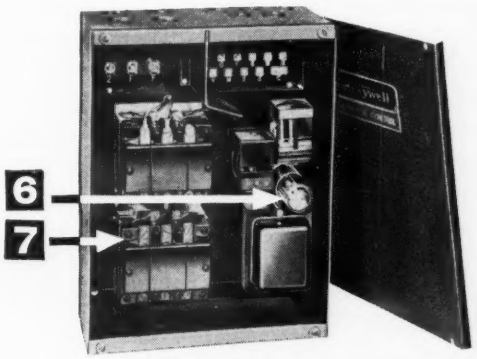
These new Honeywell panels were designed primarily for use with the new Honeywell T830 heating-cooling thermostat, but may be used with other standard heating and cooling thermostats. Both panels have provision for constant fan circulation.

W203A Panel—for heating and one-stage cooling

1. Line voltage terminal panel for connections to fan and ground.

2. Low voltage terminal panel for ease of wiring to thermostat, heating equipment, damper motor and auxiliary refrigeration controls.

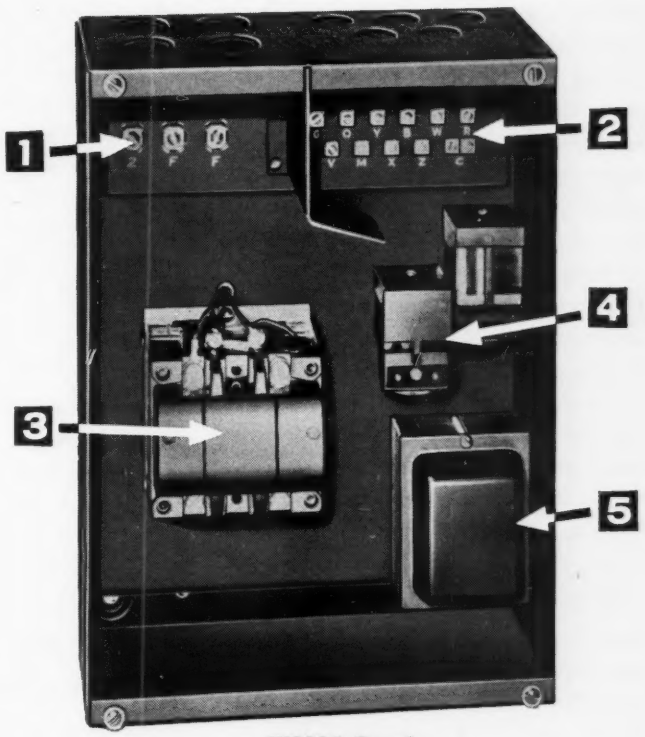
3. Motor contactor or starter with terminals to connect power supply and compressor.



W203B Panel

MINNEAPOLIS **Honeywell**

First in Controls



W203A Panel

4. Relays to operate fan and interlock heating and cooling section.

5. 24-volt transformer provides ample capacity to operate heating control and auxiliary equipment.

W203B Panel—for heating and two-stage cooling

Includes all the features of the W203A above, plus:

6. Time delay to prevent both compressors from starting at same time, thus overloading power line.

7. Second stage contactor to operate second compressor on two-stage cooling unit.

Minneapolis-Honeywell
Dept. FH-6-143, Minneapolis 8, Minnesota

Gentlemen: Please send me the new Honeywell catalogue: Heating-Cooling Controls for year-round residential air conditioning.

Name.....

Firm Name.....

Address.....

City..... *Zone*..... *State*.....

fueloil & oilheat

can be changed from a vapor to a liquid but the loss of this sensible heat is but preliminary to the real work of the condenser.

Now take the saturated vapor from the point where it has lost its superheat in the first few coils of the condenser. The air or water flowing over the exterior of the condenser starts to remove a part of the latent heat that was absorbed in the evaporator while boiling the Freon.

As the Freon moves on through a few more coils, enough heat has been removed or transferred to the atmospheric air to change a small part of this saturated vapor to a small drop of liquid at the saturated or boiling point temperature corresponding to the pressure within the condenser. The real work of the condenser consists of the continuous process involved in making the Freon vapor change to tiny drops of liquid.

Saturated Freon vapor

If the last few coils of the condenser were transparent the saturated Freon vapor in the center of the coil pipes would be visible with drops of liquid on the metal of the coil sides with both vapor and liquid drops moving in the direction of flow through the condenser.

If the machine is functioning properly at the condenser outlet the vapor has changed almost completely into drops of liquid that flow into and drop to the bottom of, the receiver. In order that this Freon can stay in a liquid state its temperature must be equal to or lower than the boiling point temperature at the pressure in the receiver. Now the cycle is back at the starting point, the receiver, and since the first introduction to the Freon in the receiver it has changed from (1), liquid under high pressure in the receiver and in the liquid line to (2), saturated vapor and liquid under low pressure in the evaporator proper to (3), superheated vapor under low pressure in the last coils of the evaporator and in the first part of the suction line to (4), vapor with increased superheat at the suction valve of the compressor (of course still under low pressure) to (5), very hot superheated vapor under high pressure again at the outlet of the compressor and in the first few coils of the condenser to (6), saturated vapor and drops of liquid under high pressure in the last coils of the condenser and back to our starting point —(1), liquid under high pressure in the receiver.

Below is a list of the parts that make up a mechanical refrigerating machine, they will be covered in a future article:

1. Receiver
2. Liquid line
3. Expansion valve
4. Evaporator
5. Suction line
6. Compressor
7. Condenser
8. Heat exchanger

Properties of Saturated Freon Vapor

Temp. (deg. F.)	*Pressure (Gage)*	*Temp. (deg. F.)*	*Pressure (Gage)*
30	28.46	110	136.0
32	30.07	112	140.1
34	31.72	114	144.2
36	33.43	116	148.4
38	35.18	118	152.7
40	36.98	120	157.1
42	38.81	122	161.5
44	40.70	124	166.1
46	42.65	126	170.7
48	44.65	128	175.4
90	99.6	130	180.2
92	103.0	132	185.1
94	106.3	134	190.1
96	109.8	136	195.2
98	113.3	138	200.3
100	116.9	140	205.5
102	120.6	142	
104	124.3	144	
106	128.1	146	
108	132.1	148	

Oilfired absorption Cooling installed in L. I. Homes

THIRTY-ONE HOMES in a price range extending from $40,000 to $78,000 each in the Kings Point - Sands Point, Long Island, N. Y., areas now being erected will be equipped with 3-1/3 ton Servel absorption type airconditioning units operated with an oilburner, that provide both summer cooling and winter heating as well as dehumidification and air filtering.

The oilburner, a low pressure gun type, operates on a high-low fire principle, the low flame being used to operate the absorption cooling unit and the high flame for heating. This is the first real estate development with oilfired airconditioning units in each home. Albini and Raddock, prominent Long Island builders, are constructing these custom built homes. Two of the dwellings are already completed and open for public inspection. Air Equipment Distributors Incorporated, distributors for Servel airconditioning equipment in New York City, will supervise the installations.

The use of an oilfired absorption principle unit now enables the installation of such equipment to be made in areas where oil is the most economical and convenient fuel for airconditioning as well as for heating. The homes in ranch and split level style are from 7½ to 8 rooms with 3 or 3½ baths.

Louis V. Albini, president of the firm, makes the statement that his company "feels that residential all-year airconditioning is a must for builders and that his company now would not think of omitting this feature in their current plans."

The advent of the oilfired absorption type airconditioning unit opens what may become a vast field of development for the oilburner dealer and installer. This year-round unit increases the number of applications for which oilheating can be economically applied.

❖

T. H. Smoot, chief engineer, Lennox Furnace Co., Marshalltown, Ia., will terminate his association with that company as of June 30. Prior to joining Lennox, Smoot served as chief engineer for Fluid Heat Div., Anchor Post Products, Inc.

Ten million Burners by 1960 forecasts Minner at Boston

BY THE END of 1960 there will be approximately ten million central heating oilburners in use throughout the nation, in the opinion of J. L. Minner, national fueloil manager for Shell. This prediction was a feature of a talk by Minner before the Eastern States Oilheating Exposition sponsored by the Oil Heat Institute of New England at Boston June 2-5.

Three Friday morning speakers occupied the only group session of the week, with all other time alloted for visitors to inspect the exhibits and for manufacturers to hold their own sales meetings.

By the time the doors closed Friday at 6 P.M. more than five thousand industry men had registered to pass through the gates and browse among the very interesting exhibits. Admittance was by badge only which made it necessary to register, with the result that all visitors were dealers and their employees, none were from the general public.

New products on display were studied by our technical editor John Schulz and will occupy feature position in the July issue.

The only speaking session, Friday morning, was shared as a panel by Minner, George Clement, of Modern Heat & Fuel Co., Philadelphia, and Claude A. Potts, of U. S. Machine Div., Stewart-Warner Corp., Lebanon, Indiana.

Clement as a dealer, Minner as a major oil man, and Potts as a prominent manufacturer . . . each took the same subject from obviously differing viewpoints, "What's Ahead for Oilheating?" Robert Gray of FUELOIL & OIL HEAT was moderator of the session.

Clement's major theme pointed up the fact that the next few years will separate the strong dealers for survival and the weaker ones will get into other lines. The strong company will be able to develop the necessary foresight to shift with the changing market.

Speaking only of his home city, Philadelphia, he noted that natural gas had made great strides in recent years, particularly in the small row houses of which the city and suburbs have literally a hundred thousand or more.

Clement feels that his city has lost that small row-house market to gas, but points out that the city as a whole is still a wonderful fueloil market and emphasized the fact that total fueloil gallonage continues to grow comfortably every year . . . coal of course being the victim of both fuels.

Pushing commercial Types

Clement's own company is putting a lot of emphasis just now on semi-commercial types of installations. His city has a lot of very large old homes, formerly rich residences, that are now in poorer neighborhoods. Fifteen to 20 room affairs, they are being converted into rooming houses, small apartment buildings, sanitariums and the like. Oilheating is the only right fuel for these because the consumption is so large. Up to about 8 Gph he uses No. 2 fuel on these jobs, with No. 5 above that if there is room for a good sized tank.

The gas industry in Philadelphia is now going after oilburner conversions, mostly early day burners in old fashioned boilers. As has been so often observed, gas men cannot switch oilheating users to their fuel if the oilheating system is operating well and the family well treated. Clement urged the dealers in the audience to get working on these old jobs to either modernize them or replace them before gas gets a foot in the door.

One of the most versatile dealers in the oilheating industry, Clement came to Boston from Maine where his company has just contracted with the Government to operate for it a deep-water terminal and a 200 mile pipeline supplying five airfields.

Gray pointed out that in line with Clement's thought of gas getting mostly the small homes with little fuel requirement the same was pretty much true in the industry as a whole. The great gas heating area of the country includes the south central and southwestern states where homes average small and fuel needs modest . . . and while gas does approximate the same number of annual installations as oilheating, the dollar impact for both equipment and fuel is much lighter with gas.

The second panel speaker, Jack Minner of Shell, took a decidedly favorable view of oilheating's growth down the road. Following his estimate of at least ten million oilburners in use by the end of 1960, he predicted that at least one and a half million of the new crop will be new home jobs and about 2,200,000 will be conversions from coal.

Thus in the eight year period from the close of 1952 to the end of 1960 the average number of new oil accounts added annually would be 460,000, compared with an average of about 450,000 in the past six years. Naturally the total number of burner sales will be considerably higher, as the replacement market builds up, year after year.

Industry to push Heating

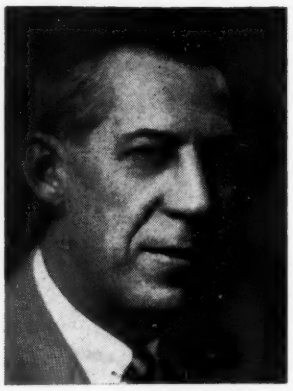
Commenting on the much improved supply situation for heating oils, Minner finds that there is no longer any question about an adequate supply. "On the contrary," he went on to say, "we now find ourselves back in a real competitive situation with the industry now looking for markets for their so-called 'middle of the barrel' products. More and more the refineries will be looking to the home heating oil market for an outlet for their distillates, because the largest competitor for this product, the railroads, will within the next few years approach complete dieselization."

Recognizing that natural gas will be the industry's main competitor through the years, with coal "expected to grow even weaker," Minner brings to mind that although the expansion of interstate gas pipelines has been tremendous during the last five years, new oil installations have still averaged between 500 and 700 thousand a year.

"Furthermore," he continues, "all indications point to a rise in gas prices in the future while oil prices should re-

Round Table Speakers

Clement



Minner

Potts

Gray

main fairly stable." He then notes the rise in the price of field gas . . . that while old contracts were at the level of five to seven cents per thousand feet at the well, the new contracts are being signed at up to 16 to 20 cents, a rise of 300%. In addition, most supply contracts now have escalation clauses whereby prices in all contracts are boosted to the level of any new contract signed.

Gas transmission costs are going up, Minner finds, partly because the newly discovered gas is averaging 500 miles further from the established markets. It will be moved at an additional cost to the consumer of about 8 cents a thousand feet, which would be equivalent to an increase of more than a cent a gallon in the price of oil.

Speaking of the future effect of gas expansion on our oilheating markets, Minner said, "It looks to us as though there certainly won't be any greater effect in the future than there has been in the recent past, and there may actually be considerably less."

The closing speaker of the panel, Potts sees a strong future for oilburner sales on one condition . . . that dealers get better profits on their installations. Based on his own company's experience he feels that selling a product with special features and at a price level above the cheapest is the most effective way for a dealer to make enough profit to assure his putting forth strong effort for sales.

Potts had a visual presentation to match the theme of the meeting. He selected the word "Ahead" from the title of the meeting, using the five letters of the word as initials for five more words, which he had on an easel and displayed one at a time.

The words were Action, House, Employee, Analyze, Decide . . . and he discussed them in reverse order, so that the last one, "Action," gave point to the preceding admonitions.

Urging men to stop drifting, make up their minds and stay put, Potts asked them to "decide" if they like the business, if they like the town they're in, if they like the company they operate or they represent. They are to "decide" to have more confidence in the country and in their own futures, to get greater knowledge of the business.

It's time to "decide" in his opinion that the dealer's real competition is not the other oilburner dealer; rather it's the appliance people and other industries that are after the consumer's dollar. Pointing out that in earlier years it was traditional that the cost of equipment for heating a home was about 10% of the total cost of the dwelling, now it's dwindled to nearer 5%—our fault as an industry.

People with very antiquated and inefficient heating plants are spending hundreds and even thousands of dollars for other home improvements, while no one is suggesting that they spend for heating, and they themselves don't give it a thought because heating plants are out of sight. This may be helped some, in Potts' opinion, as heating plants move upstairs into kitchens or utility rooms.

Analyze your Business

"Since 1942," Potts declared, "we have put into mothballs a great many of the necessary and important phases of good merchandising and have sold on 'fear' motives for buying . . . fear of rationing, fear of shortages, fear of price increases. We've forgotten how to sell on the merits of a product, how to analyze our community and our market."

He showed how we have only 15% saturation in oilfired central heating in the nation, basing his figures on total homes, whether or not they have central heating plants. All of these are prospects or will become prospects some day for fully automatic heating.

For his third word, "employees," Potts explored the industry's very tight situation on good men, pleaded for better selection, better training and better opportunities for these men to make real money with us . . . which can only be done when the dealer earns real profits through courage in pricing. His fourth word, "House," referred to the business place of the dealer, its adequacy, its attractiveness, its appeal to employees as a place from which they could hold their heads up in the town. The last word, "Action" was dramatized to get dealers moving on the prior four words.

Where will Oilheating be sold?

WHILE THE state distribution of present oil and gas heating installations has been published from time to time, we now introduce a new concept to the competitive fuel picture . . . the number and location of coal heated homes, as representing the conversion market potential for the fully automatic fuels.

This has been facilitated by getting the housing figures from the 1950 Census. Of course, the Census data as originally presented is not too useful for this purpose since it was based on "dwelling units" which include all individual units in apartment houses.

Checking with Washington housing sources we arrived at an approximate factor to cut out these apartments. That left one and two-family houses. Then we added to these the additional home completions since the Census was taken in the spring of 1950. This brought a total of 20,774,135 centrally heated 1-2 family houses in use on January 1, 1953, so the accompanying table and the adjoining maps are based on that date.

Notice that the percentages in the table are of two general types. Those in the left hand half show the per cent of homes using each principal fuel within the individual state. The percentage listed under coal heating also includes miscellaneous fuels.

The right hand portion of the table shows how each state ranks in the national total for each fuel.

Guide to Replacements

The large map provides a useful guide to the future replacement market, since that will be in almost direct relation to the number of oilburners in use in any area. Shown in actual numbers on this map are also the competitive installations in each state. The red shading on this map represents the territories where oilheating has its greatest present strength.

The small map shows, in four grades of shading, the best future markets for conversions to oil from coal and miscellaneous fuels. The darkest red shading represents the highest concentration of conversion prospects, the white areas the lowest.

The 19 states having any of the three grades of red shading account for 87% of all present oilburners in use and for 90% of future conversion potentials.

An interesting observation from this study would be that most of the best oilheating states are also the strongest for coal, so the future market, geographically, is much like the past.

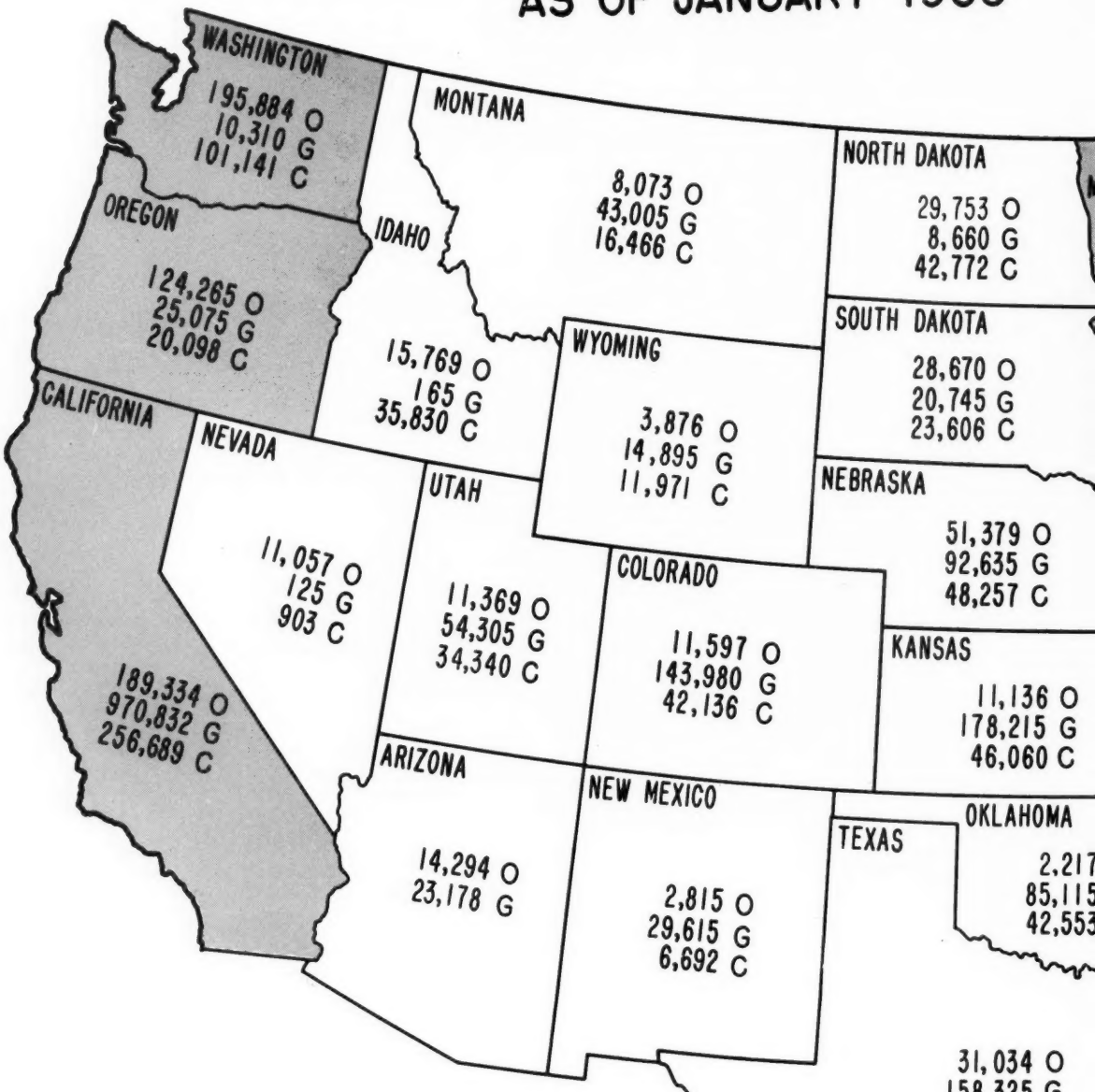
Oilheating in a Competitive Fuel Market

Centrally Heated 1–2 family Homes	—PER CENT OF STATE— *Oil Heated*	*Gas Heated*	*Coal Heated*	*January 1, 1953*	PER CENT OF U. S. INSTALLATIONS *Oil Heating*	*Gas Heating*	*Coal Heating*
118,501	64	1	35	Maine	1.1	..	0.5
85,923	86	2	12	New Hampshire	1.1	..	0.1
51,549	42	..	58	Vermont	0.3	..	0.3
904,190	64	6	30	Massachusetts	9.1	1.0	3.0
128,388	62	7	31	Rhode Island	1.2	0.2	0.4
379,299	70	4	26	Connecticut	4.5	0.3	1.1
1,667,850	66	5	29	NEW ENGLAND	17.3	1.5	5.4
3,422,063	33	9	58	New York	17.8	5.8	21.8
1,065,958	45	7	48	New Jersey	9.1	1.5	4.5
2,114,909	26	17	57	Pennsylvania	8.5	6.6	13.5
57,271	73	8	19	Delaware	0.8	0.1	0.1
433,359	57	18	25	Maryland	3.8	1.5	1.2
195,330	37	36	27	Dist. of Columbia	1.1	1.3	0.6
7,288,890	36	12	52	MIDDLE ATLANTIC	41.1	16.8	41.7
283,548	50	16	34	Virginia	2.2	0.9	1.0
124,707	2	40	58	West Virginia	..	0.9	0.8
140,707	53	1	46	North Carolina	1.2	..	0.7
39,724	55	3	42	South Carolina	0.3	..	0.2
120,826	12	61	27	Georgia	0.2	1.4	0.4
50,761	90	10	..	Florida	0.8	0.1	..
760,273	40	23	37	SOUTH ATLANTIC	4.7	3.3	3.1
1,178,850	26	40	34	Michigan	4.8	8.9	4.4
1,485,148	9	43	48	Ohio	2.2	11.9	7.8
610,775	20	12	68	Indiana	1.8	1.4	4.6
1,714,612	19	13	68	Illinois	5.1	4.3	12.8
604,339	36	13	51	Wisconsin	3.5	1.5	3.4
490,101	46	31	23	Minnesota	3.6	2.8	1.2
432,361	26	31	43	Iowa	1.7	2.5	2.1
540,333	17	55	28	Missouri	1.5	5.6	1.6
235,411	5	76	19	Kansas	0.2	3.3	0.5
192,271	27	48	25	Nebraska	0.8	1.7	0.5
81,185	37	11	52	North Dakota	0.5	0.2	0.5
73,021	39	28	33	South Dakota	0.5	0.4	0.3
7,638,407	22	31	47	MIDDLE WEST	26.2	44.5	39.7
185,242	6	30	64	Kentucky	0.2	1.0	1.3
169,962	9	36	55	Tennessee	0.2	1.2	1.0
84,376	11	38	51	Alabama	0.1	0.5	0.4
36,968	5	60	35	Mississippi	..	0.4	0.1
49,914	5	41	54	Arkansas	..	0.4	0.3
72,869	14	80	6	Louisiana	0.2	1.1	..
129,885	2	66	32	Oklahoma	..	1.6	0.6
229,415	14	69	17	Texas	0.6	3.0	0.5
958,631	9	51	40	SOUTH CENTRAL	1.3	9.2	4.2
67,544	12	64	24	Montana	0.1	0.8	0.2
51,764	30	..	70	Idaho	0.2	..	0.4
30,742	13	48	39	Wyoming	0.1	0.3	0.1
197,713	6	73	21	Colorado	0.2	2.7	0.5
39,122	7	76	17	New Mexico	..	0.6	0.1
37,472	38	62	..	Arizona	0.2	0.4	..
100,014	11	54	35	Utah	0.2	1.0	0.3
12,085	91	1	8	Nevada	0.2	..	..
536,456	15	58	27	MOUNTAIN	1.2	5.8	1.6
307,335	64	3	33	Washington	3.1	0.2	1.1
169,438	73	15	12	Oregon	2.0	0.5	0.2
1,416,855	13	69	18	California	3.1	18.2	3.0
1,893,628	27	53	20	PACIFIC	8.2	18.9	4.3
20,744,135	31	26	43	TOTAL U. S.	100.0	100.0	100.0

OILHEATING MARKET

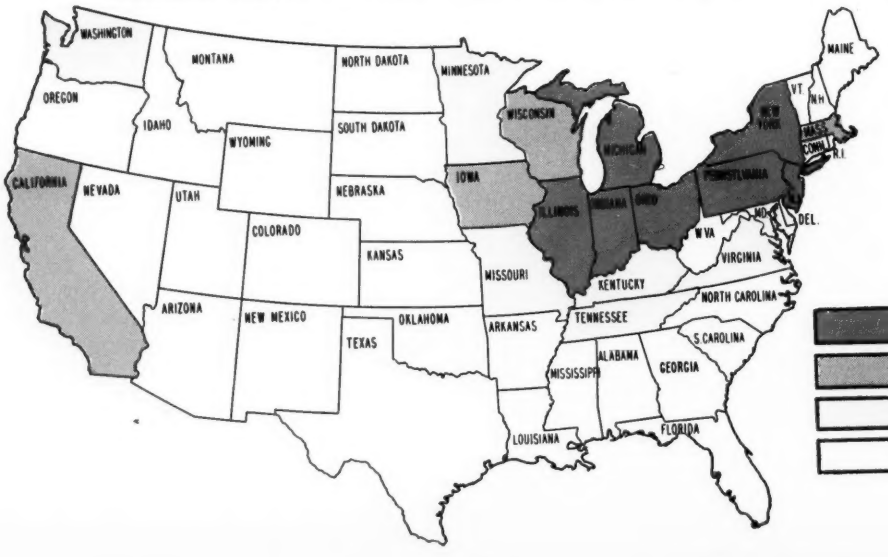
(RELATED TO COMPETITIVE FUELS)

AS OF JANUARY 1953



FUTURE POTENTIAL CONVERSION MARKET

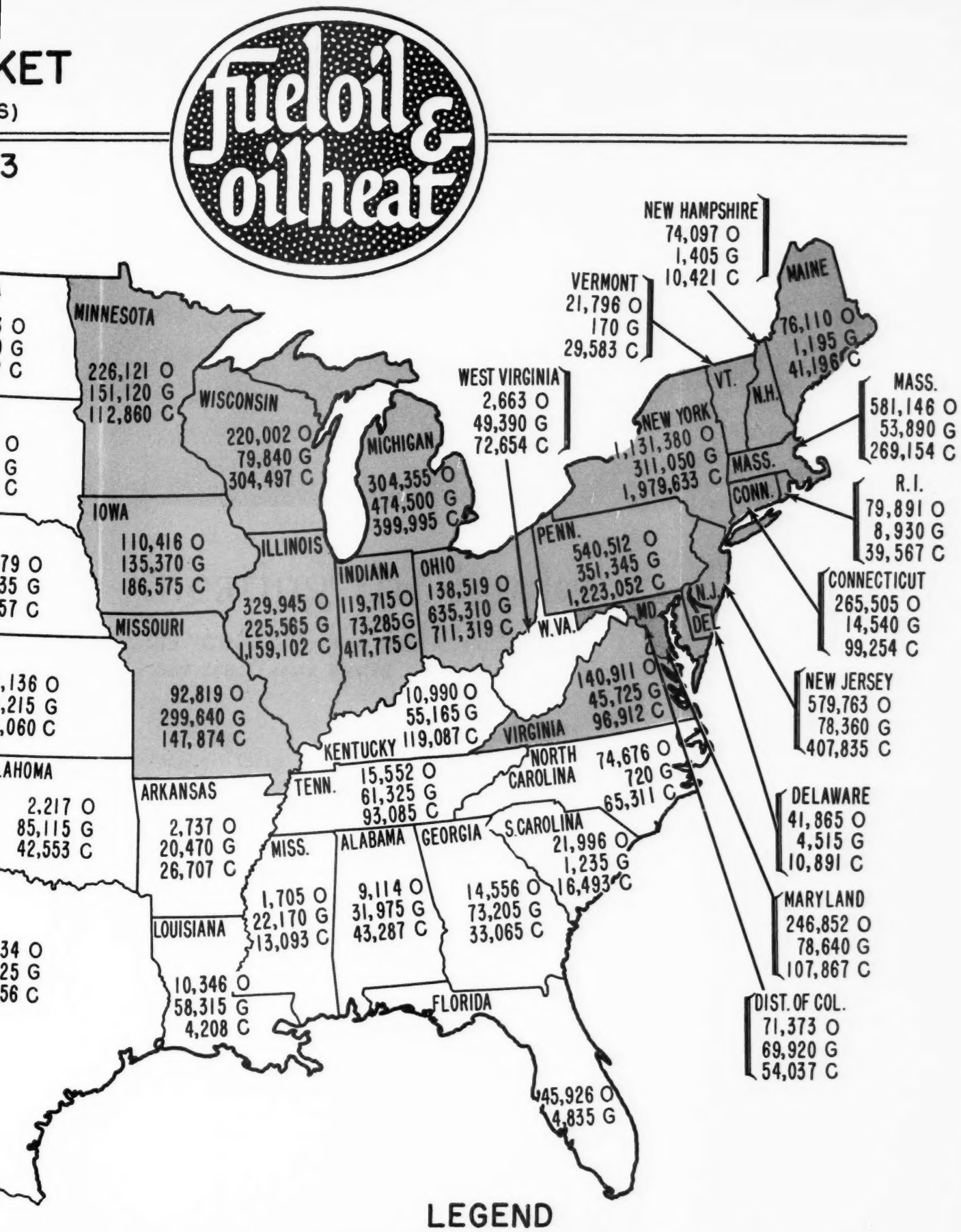
CENTRALLY-HEATED 1-2 FAMILY HOMES NOT NOW USING OIL OR GAS



LEGEND

- OVER 4.0% OF U.S. TOTAL
- 2.5 TO 4.0%
- 1.0 TO 2.4%
- UNDER 1.0%

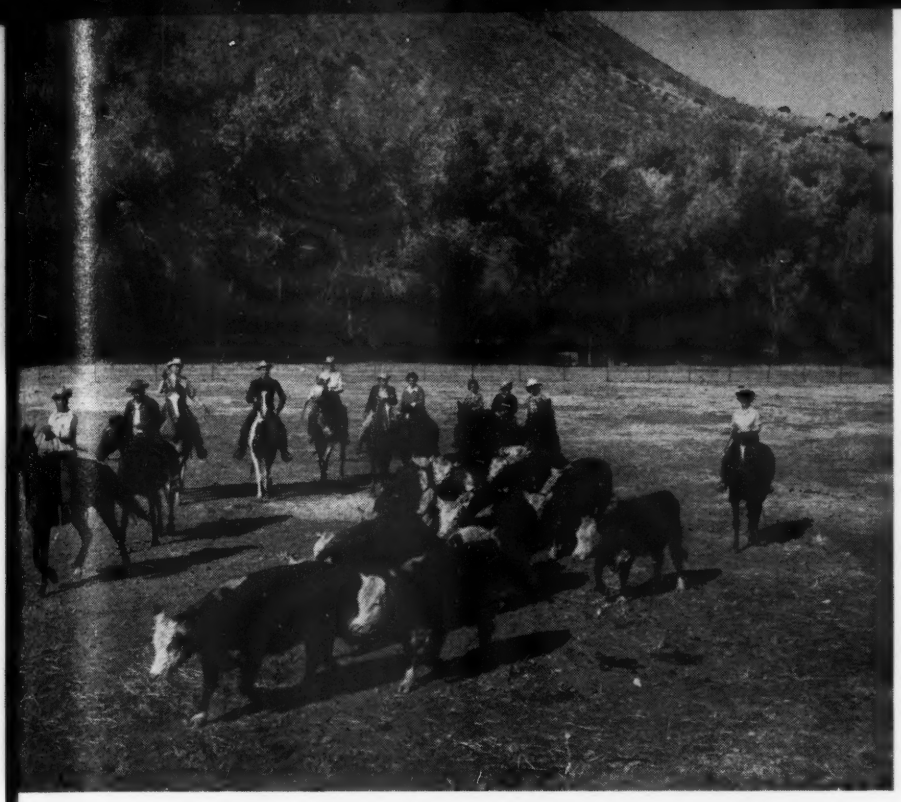
KET
S)
3



LEGEND

O - OILBURNERS IN USE JANUARY 1, 1953
G - GASBURNERS IN USE JANUARY 1, 1953
C - OTHER FUEL PRIMARILY COAL
▭ - PRIMARY OILHEATING MARKET

OTAL



On roundup *the wranglers and dudes bring in just a few head each day to stretch the job over weeks.*

Oilheating the Dudes

Arizona's "Circle Z" ranch uses seven Burners to comfort the Guests during off-saddle Hours

by
Robert Gray

DROPPING OFF the Golden State at Tucson one night in mid-March we were rounded up by head wrangler Ace of the Circle Z. Expecting mustangs and a buckboard we were surprised to find ourselves headed south in a shiny Packard station wagon. Our goal was the high grass country along the Mexican border and the 80 miles were clipped off pretty fast in the open country with little traffic.

In Arizona the term "grass country" doesn't mean what it would in Pennsylvania or Illinois. They simply mean that there's more grass in the border mountains than in some other parts of the desert. At Circle Z one cow or steer can get along with 15 acres for itself instead of the 25 acres that it takes in the "dry" country.

Dude ranching today is big business. Back in 1930 there were only three such institutions in Arizona, including Circle Z . . . postoffice Patagonia. Today there are 94 in the Tucson trading area alone, with as many more using Phoenix as a base and another lot around the Indian reservations and Grand Canyon to the north.

These ranches can accommodate anywhere from 10 to 60 guests and in late years they have been fairly well filled especially through the winter and spring months. The better quality places, like Circle Z, allow the dudes about all the freedom they want. A typical routine includes two or three hours riding in the morning in charge of a wrangler, also afternoon or evening rides if not too many want to go along. There are always spare horses but they can't be overworked because much of the riding is rather vigorous mountain climbing. Novices if they like can go off in separate slower groups for a trot along the lower trails and stream beds. Recognized horse experts can go by themselves, for each guest has his own horse to use throughout the period of his stay.

Afternoon siestas, games in the cantina, visits to the Mexican towns over the border, or just plain loafing occupy the off-horse hours. That's where we encounter the need for oilheating. The days are warm, the nights quite cool, without too much variation the year round, because Circle Z is situated at 4,000 feet altitude.

In fuels, Arizona has an odd assortment. There never has been much coal business. Wood has been popular because most of the state has plenty of mesquite to be had for the asking if you want to go chop it, or for $12 a cord if you want someone else to do the work.

In recent years natural gas has come to most of the larger towns, and so far it has been decidedly cheap. The California and West Texas oilfields are close at hand. But year after year, we continue to see a fair crop of new oilheating installations. Last year there were 1,165 and the state has 14,294 in operation, as of January 1.

Sometimes there is a choice of fuels, both to communities and to individual users. At Circle Z, owner Fred Fendig is somewhat on the fence about it all.

Raymundo Rojes, *maintenance man for the ranch, takes care of any necessary service on the seven oilburners.*

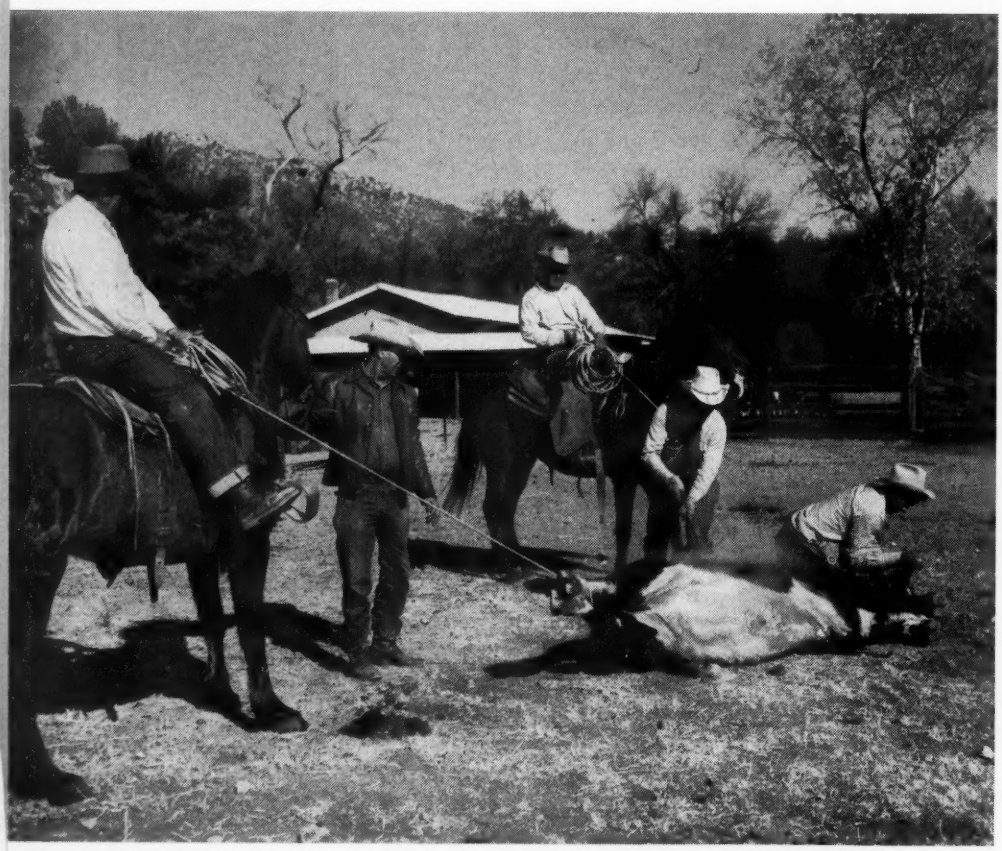
Arthur H. Lockrae, *who recently retired as vice-president of Minneapolis-Honeywell Regulator Co., was a Circle Z devotee for 17 years, then bought his own ranch a mile out of Patagonia. Shown with him are Mrs. Lockrae and their daughter, Mrs. Gray Steel, whose husband helps operate the ranch.*

Cactus, *eucalyptus and mesquite frame the group of small ranch buildings. Most have four guest rooms, a couple are larger. Ten are oilheated.*

At present he's using both fueloil and LP gas and in the absence of any easy basis for comparison had been of the impression that the LPG was the cheaper of the two. Actually it's far from it. No. 2 oil sells for 14.5¢ and butane gas for 19¢ a gallon, with Btu contents of 140,000 and 101,000 respectively. Each dollar spent for oil buys 81% more Btu than a dollar's worth of butane.

But for the high cost of conversion and piping to the various buildings, Fendig would have gone all out for butane before now, principally because the gas man was doing a selling job. The oil man, knowing for himself that fueloil is much cheaper at those rates, had assumed that everyone else knew it and didn't bother to mention it to his customers.

Then Fendig had momentarily considered natural gas, but dropped the idea fast enough when he got an estimate on a pipe to bring it in. There's a large natural gas line cutting a scar through a mountain valley just under two miles south of the main gate of Circle Z. The rates are low once you connect, but they wanted $11,000 to put through the two mile connection to the ranch. That killed it for a few years at least, cattle prices being what they are. Out of the 12 buildings at the ranch 10 are oilheated, the other



Branding *a steer while the wranglers hold him down is one of the dudes' privileges after the morning roundup. Naturally, experienced men could handle all operations of a roundup out on the range in a tenth of the time, but of course they won't pay for the privilege and the dudes will.*

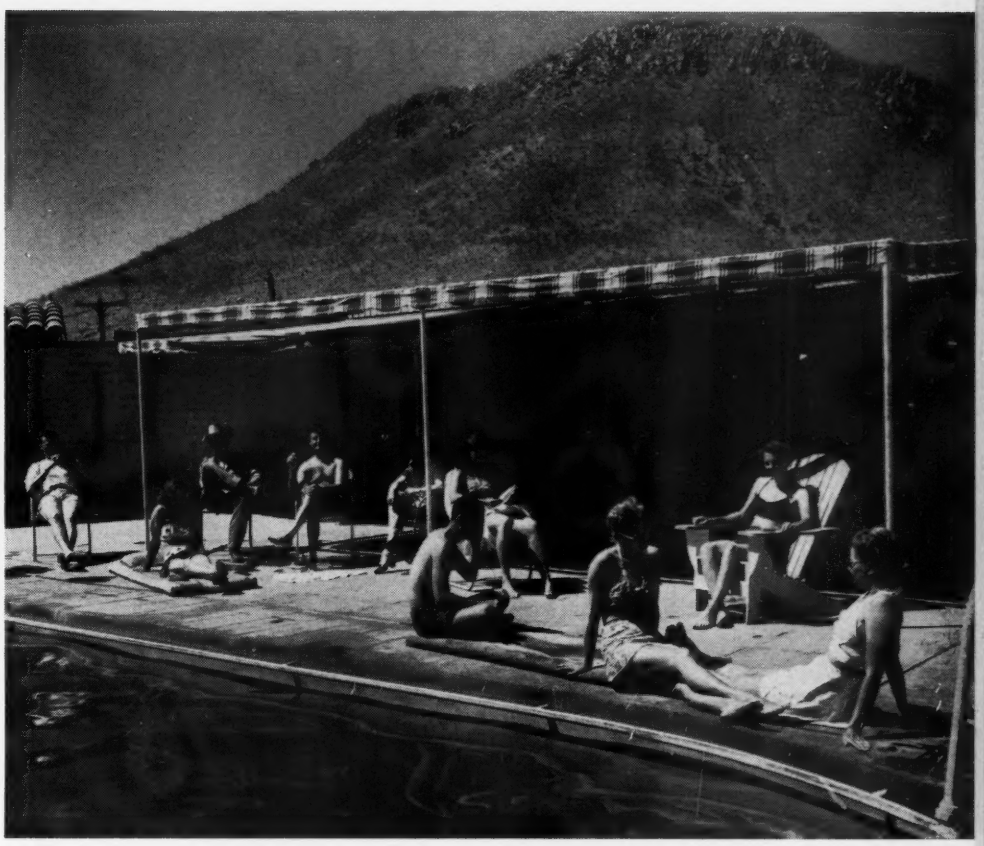
two using butane. Then cooking and a part of the water heating jobs use gas.

Four oilburners are used for the space heating job in the 10 buildings. One of the boiler-burners handles four buildings, another three. With the exception of the main ranch house, which has warm air, the others are all steam jobs with the piping run underground from cottage to cottage.

One of the first impressions you get from these installations is their absence of thermostats. Only the main ranch house uses one. For the other buildings the steam is turned on for "a while" each morning and evening. For the evening heat, the ranch's maintenance man Raymundo Rojes just turns on the burners. For the morning shot of heat he uses time switches. This gives the guests plenty of heat, but often more than they need. Some day an enterprising dealer will sell Fendig a set of outside controls, or possibly solenoids with individual cottage controls.

Individual guest control would be too elaborate since the cottages have from four to eight guest rooms each.

In addition to the heating job, three regular gun-type oilburners are used for water heating. One large one is connected to the swimming pool to remove the chill for bathers . . . incidentally another popular off-saddle diversion. The other two handle large capacity heaters and tanks, with circulators to the buildings served, the laundry, etc.



Taking the chill *off the ranch pool is one of the jobs for an oilburner.*

For fuel supply, Fendig has a large above-ground oil tank with 2,500 gallons capacity on a hill above the highest building, so that oil flows by gravity to all burners through a network of buried iron pipe. For the LP gas he uses three tanks with capacities of 1,000 gallons, 450 gallons and 150 gallons. Any fuel marketer making deliveries of either fuel to these facilities can get very satisfactory drops.

It's very interesting to run onto some of these unusual applications of oilburning in the Western States. We've looked into the plants designed for hop drying in the Yakima Valley, bulb growing at Puyallup, malt plants on the Columbia River, alfalfa curing in California, all in previous articles. The applications at a dude ranch are less spectacular, being principally space heating and water heating, but nonetheless you can stand a few sore muscles from mountain riding the first few days when you know that you'll be able to stretch out for the lazy hours in complete assurance of comfort because there's plenty of oilheating on the spread.

Cowmen *and wranglers in a festive mood. Left to right, Henry Acevedo, Wilfred Whelan (standing), Harvey Whelan, Fred Fendig (ranch owner) and Fred Acevedo, boss wrangler. The first three are from neighboring ranches, help on roundups.*

COMMERCIAL & INDUSTRIAL oilburning

Oilburner Service is not an Accommodation

Lieblich practices the Maxim, "Without oil Sales, Service must pay"

by
Charles Burkhardt

BACK IN 1908 when Hans Lieblich first set up the H. Leiblich Company to install oilburners in the commercial-industrial field, the seed was sown that would produce over a period of 45 years one of the largest distributing and installation organizations for heavy oilburning equipment. The growth of this company has been steady, unspectacular and assured. Two major wars, a couple of depressions and other world disturbing events had no substantial deterring effect on this well organized, progressive outfit.

Today, in 1953, nearly a half century later, two distinct companies exist in order to efficiently handle the volume of business now involved. These two companies, the H. Lieblich Inc., and the Lieblich Oil Burner Inc., the latter founded in 1946, play their specific parts in the picture.

H. Lieblich Inc., the parent organization, is now the distributing and installation group. This part of the two company team distributes S. T. Johnson burners in New York City, New Jersey and Long Island. It also installs the commercial-industrial burners sold in that territory. Installations include factories, plants, hotels, giant apartment buildings and a large number of garden and other type low rent housing projects in the metropolitan New York area. This latter type of project has had a mushroom growth in that city since the war and aggressive selling methods and fair competitive bidding have brought Lieblich Company more than its share of this type of installation.

By 1946 it became apparent that the company setup would have to be enlarged and altered to properly cope with the growing volume of business. From this happy situation came the Lieblich Oil Burner Inc., which performs all the repair and service work for the parent company. In addition the newer company handles

We're PROUD to Announce
Complete Modernization
of our ENTIRE BUILDING
COME in and see our up-to-date headquarters, now equipped to serve you better and more efficiently as
LIEBLICH-JOHNSON
OIL HEATING SYSTEMS
H. LIEBLICH & CO., Inc.
ESTABLISHED 1908

Figure 1. *Completely renovated, air-conditioned offices provide the basis for this prominent announcement that appears in the small display window at the front of the building.*

Figure 3. *The job service record form provdies a wealth of information on all aspects of the equipment and immediately gives the complete service history of every job from the first service call on.*

LIEBLICH OIL BURNER, INC.
36 WEST 66TH STREET
NEW YORK

JOB SERVICE RECORD

JOB NO......

SERVICE CODE
CH.: Charge
CON.: Contract
G.: Guaranteed
N.C.: No Charge

Name..... Supt.....

Address..... Phone.....

Call No.	Date	Service Man	Service Ticket No.	Nature of Service Call and How Disposed of	Code	Hrs.	Rate	Cost	Total Cost To Date
1									
2									
3									
4									

SERVICE SALES RECORD

Enter All Sales of Repair Parts, Repair Orders, Service Contracts, Etc.

Call No.	Date	Service Ticket No.	Nature of Sale	Amount

SERVICE DATA

(Enter Here All Information of Value to Service Department in Connection with Service Calls)

			GENERAL DATA
	Boiler		
Boiler Plant	Make		Type Heat—Steam, Hot Water
	Cat. No.		Size Oil Tank Cal's
	Rating		Grade of Oil
Burners	Make		Located Where
	Model & Size		Consumption of Oil
	Serial No.		Oil Company
	Number		

Special Equipment and Notes

LIEBLICH OIL BURNER INC.
New York, N. Y.

Gentlemen:

You have been the owner of a LIEBLICH-JOHNSON *Fully Automatic Oil Burning system for the past year. We trust you have had economical operation as well as satisfactory use of this installation.*

During the past year we have demonstrated the promptness and willingness of our Service Dept. May we be of continued service to you in the future through one of our inspection plans.

Your guarantee terminated on _____ *and hereafter service calls will be on a charge basis.*

As Service Manager I would be pleased to discuss our available services with you at your convenience.

We are also equipped to service all makes of oil burner equipment as well as make repairs to Combustion Chambers, boilers, controls, etc.

Thanking you for your patronage, we remain,

Very truly yours,
MELVIN MARMOR
LIEBLICH OIL BURNER INC.

Figure 2. *This letter is sent out to all accounts immediately upon expiration of the one year warranty.*

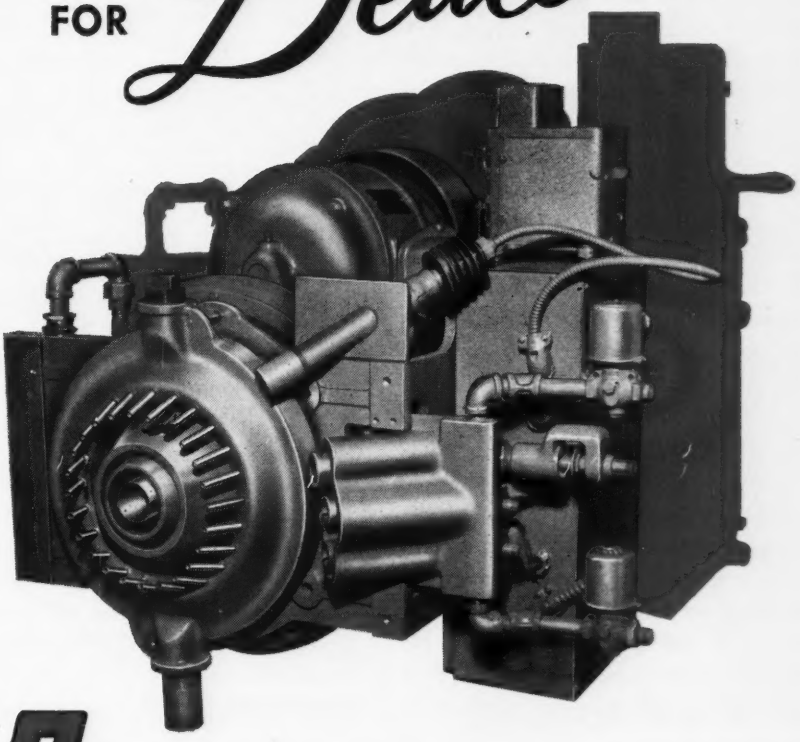
dealer and equipment sales. The older company sticks to distributor sales. Parts sales are made by the newer company, also.

Hans Lieblich, who started in this business on the plumbing side over 40 years ago and who pridefully points to his "still-in-force" plumbing license, is exceedingly active in the business and took on the job of president of the newer company in 1946 with some large amount of enthusiasm. Murray Lieblich, his son, a graduate engineer of Carnegie Tech and active in the alumni affairs of that institution is vice-president of the burner company. Murray acts as chief engineer for the two companies and keeps a close watch over the service setup.

The diverse talents of Hans Lieblich deserve some mention. Recently the companies had their offices completely renovated and modernized even to the front of the building that they have occupied on West 66th Street in New York City for all these years. The offices, spacious and well laid out, air

DOING DOUBLE DUTY

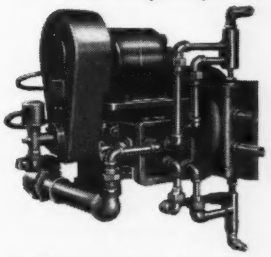
FOR *Dealers*



SUPERIOR
combination OIL/GAS burners

Dealers who sell and install Superior Burners are in an ideal position to profit most from the growing demand for combination oil/gas burners resulting from the rapidly increasing use of gas as an industrial and commercial fuel.

The simplicity and ease of changing from one fuel to the other with Superior Combination Oil/Gas Burners permits users to profit from a cost advantage in either fuel at a moment's notice.



Where dependability is primary consideration, as in providing heat for hospitals or greenhouses; and in processing where an interruption would be costly, combination burners provide dependable standby equipment.

Valuable, unassigned territories are still available. If you have the experience and the organization to successfully handle sales and installations, write for complete details.

for performance you can **BANK** *on*

SUPERIOR

ROTARY BURNERS

SUPERIOR COMBUSTION INDUSTRIES INC.
TIMES TOWER, TIMES SQUARE, NEW YORK 36, N.Y.

conditioned and tastefully decorated are climaxed by Hans Lieblich's office as president of the company. The walls of his panelled office are replete with oil paintings of many beautiful scenes from cities throughout the world. The interesting thing about these paintings is that Lieblich senior is the artist, himself. In spite of all the pressures of a going, expanding, successful business, he still finds some time to devote to his love of painting. Even more striking is his prolific ability in this respect—the numbers of his paintings are legion, and added to this is his taste for successful deep sea fishing as the proverbial framed photographs attest.

Murray Lieblich, who checks the over-all operations of the burner company's service department, discusses with intense interest the profit making phase of the service operation. He doesn't believe service should be given away and emphasizes the fact that the activities of the company are such that service just has to pay its own way. "Service," he states forcefully, "is a business not an accommodation and since we do not sell oil we just cannot give it away free." From this clearly stated business philosophy all of their service operation patterns spring.

H. LIEBLICH & CO., INC.

Oilburner Report

Date: ..... B: ..... Job Address: .....
Owner's Name: ..... Corp. Name & Addres: .....
Owner's Phone: ..... Agent's Name & Address: .....
Agent's Address: ..... Whom Bill: .....
Superintendent's Name: ..... Superintendent's Phone: .....
Boiler—Make ..... Type ..... Size .....
Tubes—Leaking ..... Clean ..... Size .....
Breeching ..... Size ..... Draft Regulator ..... Clean .....
Repairs Recommended .....
Burner: ..... Size: ..... Grade of Oil: ....
Make: .....
Separate Pump Set: ..... Volts: ..... Phase: .....
Repairs Recommended & Parts Needed .....
Oil Preheater—Size ..... Overhaul ..... Replace .....
Covering: Lines .....
Preheater .....
Suggestions for Covering: .....
Water Wall ..... Size ..... Inner Cone .....
Circulator ..... Size ..... Make ..... Voltage .....
Combustion Chamber: No. of Bricks .....
No. of Arch Bricks: ..... Lbs. of Plastic ..... Loads of Dirt ....
Repairs Recommended: Complete ..... Front .....
Floor ..... Rear Wall ..... Side Wall ..... Arch .....
Controls Needed .....
Wiring Needed .....
Electrical Controls in use:
Name ..... Make ..... No. .....
Other Information: .....

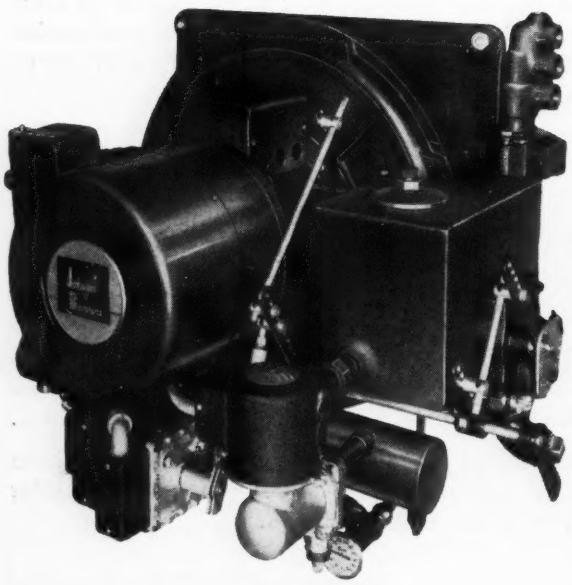
Figure 4. *Mechanics fill out this form on all jobs requiring repairs.*

"Mel" Marmor, who was appointed service manager six months ago, is the man who puts this policy into practice. For the past two years he has been wrestling with it successfully. Prior

Announcing the **NEW**

JOHNSON *Model 53* Fully-Automatic METERING PUMP BURNER

. . . the burner that has the answer to the problem of



"Cold Starts" and Variable Viscosities!

From the earliest days of the oil-burner industry, engineers have been hunting for an *automatic* method of maintaining a fixed Air-Fuel Ratio regardless of variations in oil temperature and viscosity.

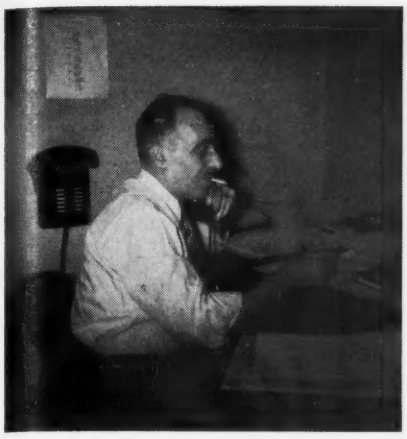
It is very gratifying, in this our 50th Anniversary year, to be able to announce a positive solution to this problem—the Johnson Model 53 Fully-Automatic Metering Pump Burner which out-performs any burner ever built on "cold starts" and automatic operation with heavy oils of varying viscosities.

The key to the phenomenal performance of Model 53 lies in the new positive-displacement metering pump which marks a revolutionary advance in oil-burner engineering combined with time-tested pumping principles. When you see the Model 53 you will be impressed by its basic simplicity . . . by its high efficiency . . . and by the easy accessibility of all working parts. Seven sizes are available, from 25 HP to 400 HP. By all means make it a point to investigate this great new burner. It's the biggest oil-burner "news" of the year.

Johnson Oil Burners

Builders of fine Oil Burner Equipment since 1903

S. T. JOHNSON CO.
940 Arlington Ave., Oakland 8, Calif.
Church Road, Bridgeport, Pennsylvania



"Mel" Marmor, *service manager, enjoys a puff while answering the phone on a request for service.*

to becoming service manager, he was Lieblich's field service representative, which is a combination super trouble-shooter and service salesman's job. He started as an installation man 22 years ago and knows every phase of the commercial-industrial oilburner game.

Under Marmor there are ten qualified oilburner servicemen and one service supervisor. Easy going and never losing his temper, he watches the operation like a hawk and takes pride in the 24 hour service that his department gives all year round. In addition he has one salesman come in each Saturday as an emergency standby man to run interference in the public relations category should any emergency arise.

The company has a fleet of six Plymouths with the outfit's name on the doors. These rented cars are furnished to the servicemen with an allowance for upkeep and operation. Each year the fleet is turned in and new cars obtained. This eliminates to a great degree the high repair and upkeep costs occasioned by using cars over too

Ernest Fagras, *service mechanic, stands in front of one of the six Plymouth cars comprising Lieblich's service fleet.*

The smart installer knows the answer!

He specifies the Paracoil **TYPE "GF"***

INDIRECT GAS FIRED FUEL OIL HEATER

for those *difficult* jobs that need special oil heating facilities

The Type "GF" Oil Heater is an integrated self-contained steam vapor generating exchanger using gas as its primary heat source.

However, the gas flame does not come in contact with the tubes containing the fuel oil. Instead, vapor from the lower steam generating section does the actual oil heating!

APPLICABLE TO ALL TYPES OF OIL FIRED APPARATUS!

THE PERFECT HEATER FOR:

- **Low temperature forced hot water heating systems on #6 oil.**
- **Plants with starting difficulties after week-end shutdowns.**

Approved by Board of Standards and Appeals, City of New York—Cal. No. 362-51SA

BULLETIN 60-L
WRITE FOR YOUR COPY TODAY!

DAVIS ENGINEERING

CORPORATION

30 ROCKEFELLER PLAZA, NEW YORK 20, N. Y. • 1064 EAST GRAND ST., ELIZABETH 4, NEW JERSEY

long a period of time.

Servicemen do not always use the cars, especially when local public transit facilities will do as well, as is the case in New York City itself. As many as four men at a time will use the subways and buses, carrying in a small box the tools necessary to their trade. Many times servicemen will have to double up on a job when the work

H. LIEBLICH & CO., INC.

Survey for Oilburner Repairs

Date .....

Job Address ..... Date of Survey ..... By .....
Owner's Name ..... Corp. Name .....
Owner's Address ..... Phone .....
Supt.'s Name ..... Phone .....
Agent's Name ..... Phone .....
Boiler Name ..... Electricity .... Volts .... Phase ....
Type ..... Burner .....
Catalogue No. ..... Size ..... Separate Pumpset ....
Boiler Need Cleaning ..... Grade of Oil .....
Breeching Need Cleaning ....
Boiler Leaking ..... Boiler Draft .....
Repairs Recommended .....
Overhaul Burner .....
Overhaul Oil Preheater .....
Combustion Chamber ..... List Material .....
Floor .....
Front .....
Arch .....
Side Walls .....
Rear Wall .....
Burner Parts Needed .....
.....
.....
.....
.....
Windbox Information .....
Windbox Ring .....
.....
.....
Wiring .....
.....
.....
OTHER INFORMATION: .....
.....

Figure 5. *This form, filled out by the service supervisors, checks on the information given by the service mechanic on the form shown in Figure 4.*

requires the labor of two men; thus the six cars do for the ten men.

The department services over 1000 commercial-industrial accounts and in addition does about 250 clean-ups a year. The service gross income runs to about $175,000 a year and the cost value of parts in stock is about $25,000.

Because of the nature of the service demanded by heavy jobs there are no form contracts as is the case with domestic burner service operations. Each contract is tailored to the specific job. Therefore, its requirements and the cost of such contracts vary considerably. These specific, individual contracts do not include parts but tie in a complete overhaul. If the equipment does not need a cleaning, that feature will not be included in the current contract, but will appear in the agreement for the following year. To include parts in a contract, Marmor estimates, it would have to be at least a five year agreement in order to make it pay.

Four different types of service are available to Lieblich customers.

1. The one year guarantee service at no charge.

2. Emergency service at a nominal hourly rate, with double time charge for overtime.

3. Overhauls and modernization.

4. Miscellaneous repairs such as controls, chambers, draft regulating equipment, etc.

The volume comprised by these types of service is:

1. 20% guarantee service
2. 38% emergency call service
3. 10% overhauls and modernization
4. 32% burner sales and parts

Included in this is the service furnished to six oil companies on a charge per call basis, which accounts for about 10% of the volume listed above. A goodly amount of the repairs are made in the field, but when conditions warrant it, the burners are taken out, brought to the shop and completely overhauled and rebuilt. This includes burners other than the S. T. Johnson variety.

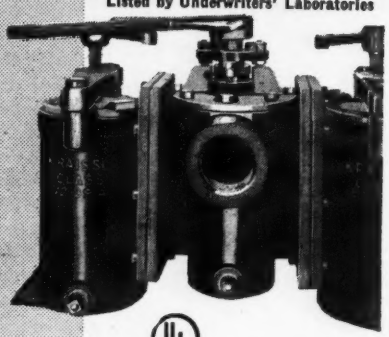
At present Lieblich is pushing an inspection type service for their customers to try and get landlords, especially the absentee type, to invest in preventative maintenance. This service which includes no work, provides a qualified inspection of the boiler room, once each month. Cost is $10

* SINCE 1926 * in the application, design and mfg. of pumps — separators — hydraulic accessories.

KRAISSL

Simplex & Duplex SEPARATORS

Listed by Underwriters' Laboratories



UL

STRAINERS • FILTERS • STANDARD AND HIGH PRESSURE

eliminate filter replacement costs and supply problem

Kraissl separators completely eliminate costly replacement of expendable-type filters—and reduce your critical supply problem. No tools needed to restore original efficiency within minutes — bronze wire-cloth basket is instantly and easily removed for cleaning, keeping maintenance costs to minimum.

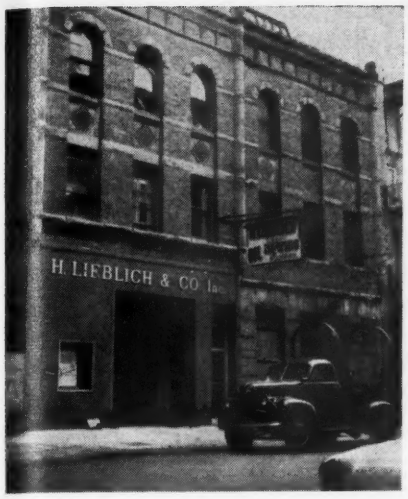
Specify Kraissl separators on your next installation—design Kraissl economy into your own burners . . . for any practical degree of separation — from straining to filtration.

Complete range of sizes—from 1¼" to 6"; pressures to 500 psi. Cast-iron, bronze, steel, stainless-steel, aluminum, monel or special metals to your specifications.

Bulletin A-1214 gives full data—write for your copy today!

KRAISSL KRAISSL CO Inc

295 Williams Ave., Hackensack, N. J.



This entire *building is occupied as offices, warehouse and shop by the two companies.*

per month per burner. It is going very well, too. When the guarantee expires, this Feature is pushed and the letter shown in Figure 2 is used to get the ball rolling. The telephone is also used to sell the inspection service. At the end of the first year 25 accounts have signed up for this and many owners are enthusiastic, as it serves as an excellent check on careless superintendents or part time maintenance and handy men.

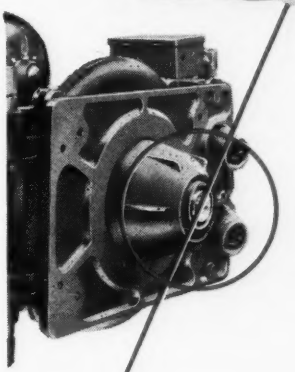
The inspection service includes the boiler room, oilburners, boiler, boiler tubes, complete breeching, combustion chamber, preheaters, low-water cut-off, and controls. Each month a complete report is submitted to the customer outlining in detail the condition of each of these components, with recommendations for repairs, if required. A special form is filled out by the serviceman during each inspection.

Paul Savage, *truck driver, is about to enter a truck equipped with hoisting equipment used for handling heavy equipment.*

DEVELOPMENT REPORT

New Enterprise "Angle-Vane" air nozzle fits flame pattern to any firebox size

Through-view of Air Nozzle showing integrally-cast angular vanes.



A COMPLETELY NEW AIR NOZZLE

For fire boxes that require a shorter, wider flame than is produced by the open-type air nozzle, ENTERPRISE now offers the completely new "Angle-Vane" air nozzle This outstanding development introduces many features that provide full flame pattern control and efficiency regardless of firebox size and shape:

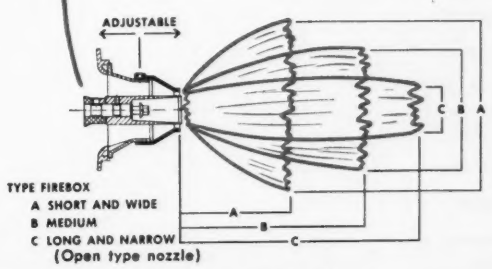
Vanes are cast, not fabricated – resist wear, damage or breakage in handling and in operation.

Wide spaced vanes minimize clogging, insure free air flow, and thus a clean fire.

Adjustable feature affords easy regulation to provide desired flame pattern.

One standardized angle design eliminates possibility of incorrect selection or mis-application of nozzles.

It will pay you to look at this and other new features that make ENTERPRISE the *Quality Line* of Horizontal Rotary Oil Burners! Write today for full information



Perfect Control of Flame Shape through Simple Adjustment

The "Angle-Vane" Air Nozzle is easily positioned and secured to produce the flame pattern desired for any firebox shape and size

ENTERPRISE ENGINE & MACHINERY CO.
A Subsidiary of General Metals Corporation
18th & Florida Sts., San Francisco 10, California

Enterprise DEPENDABLE Oil Burners

The choice of Heating Experts!

Instant Acting Is a **PROFIT PRODUCING PRODUCT**

SABANOL

THE HOMOGENIZING FUEL OIL TREATMENT

Progressive Fuel Oil Outlets Like to handle because they constantly receive comments like this:

"REGARDING SABANOL WE PURCHASED FROM THE AMERICAN SAND-BANUM COMPANY, INC. WE HAVE FOUND THAT THE USE OF THIS MATERIAL HAS BEEN VERY BENEFICIAL TO US."

SABANOL is the oil improver you've been looking for. It eliminates the sludge problem—imparts maximum burnability to even the cheapest grades of fuel oil. SABANOL is non-toxic, non-corrosive and non-explosive. Guaranteed absolutely harmless to personnel and equipment.

Its exclusive soot retardant and rust inhibitor assures a clean system from tank to burner to stack. Whether in extended storage in dealer or consumer tank, SABANOL both eliminates corrosion and picks up water due to condensation. Flash point is over 200° F.

AMERICAN SAND-BANUM CO. INC.
Established 1926
9 Rockefeller Plaza
New York 20, N.Y.

Write today for Full Details

EXCLUSIVE PROFIT PRODUCING FRANCHISE
may still be available for your territory.

Productivity Report

LIEBLICH OIL BURNER COMPANY
SERVICE DEPARTMENT
1st Quarter 1953

Serviceman	Guaranty Calls Jan.	Feb.	Mar.	Charge Calls Jan.	Feb.	Mar.	Total Calls Jan.	Feb.	Mar.	Repeat Calls Feb.	Mar.
A	50	40	25	18	10	7	68	50	32	12	1
B	46	37	31	29	28	30	75	65	61	7	4
C	11	9	—	18	14	9	29	23	9	0	1
D	44	35	17	37	24	22	81	59	39	10	5
E	42	26	24	26	26	35	68	52	59	10	10
F	32	41	35	41	27	23	73	68	58	9	4
G	4	23	26	22	19	29	26	42	55	4	6
Totals	229	211	158	191	148	155	420	359	313	14	10
										14% Repeat Aver.	11% Repeat Aver.

Figure 6. *Department service productivity record, 1st quarter of 1953.*

and because of the vast distances involved there are times when a man may make but one call a day. Marmor says the setup leads to a consideration of time only, distance is not important. When one thinks of the marvelous highway system throughout Long Island, New York and New Jersey, his words take on a new meaning.

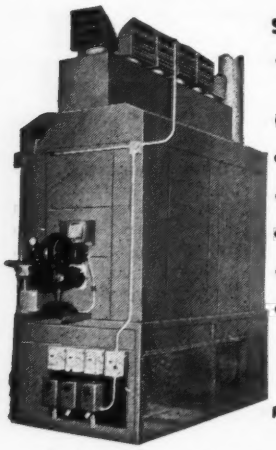
All costs incurred by the department are charged to it. These include salaries, overhead and cars. Certain operating expenses such as switchboard

ARTCRAFT

Direct Fired

SPACE HEATERS

THE MOST MODERN, ECONOMICAL AND FLEXIBLE METHOD OF HEATING LARGE AREAS



SERIES "A" FOR

- **INDUSTRIAL BUILDINGS**
- **BARRACKS**
- **REPAIR SHOPS**
- **HANGARS**
- **WAREHOUSES**
- **SCHOOLS**
- **RECREATION HALLS, CHURCHES, ETC.**

FIRED WITH GAS OR OIL

Capacities: 200,000-2,000,000 B.T.U.

(Also Suspended Furnaces, 75,000-750,000 B.T.U.)

Manufactured by

Chicago Steel Furnace Co.
9326 S. ANTHONY AVENUE
CHICAGO 17, ILL.

Productivity Report

LIEBLICH OIL BURNER CO.
SERVICE DEPT.
April 1953

Serviceman	Guaranty Calls	Charge Calls	Repeat Calls	Total Calls
A	32	32	1	64
B	17	7	5	24
C	27	31	2	58
D	45	20	5	65
E	38	30	5	68
F	30	23	1	53
Totals	189	143	19	332
			5.7% Repeat Call Average	

Figure 7. *Department service productivity record for April 1953.*

The extensive geographic coverage of the service department makes it impractical to assign each serviceman a territory. All of New York City, Long Island and all of Jersey as far as the Amboys are included. Servicemen, all of whom live in New York, are dispatched to wherever the calls may be

NATIONAL AIROIL

FUEL OIL - GAS BURNERS

SERVING INDUSTRY FOR 41 YEARS

- **Steam Atomizing Oil Burners**
- **Mechanical Atomizing Oil Burners**
- **Low Air Pressure Oil Burners**
- **Rotary Oil Burners**
- **Industrial Gas Burners**
- **Combination Gas and Oil Burners**
- **Tandem Block Combustion Units**
- **Fuel Oil Pump Sets**
- **Refractory Burner and Muffle Blocks**
- **Valves, Strainers, Furnace Windows**

Detailed information gladly sent you upon request.

Automatic Oil Burners for Homes, Churches, Apartment Houses, Factory Buildings and Office Buildings.

Established 1912 **Incorporated 1917**

NATIONAL AIROIL BURNER COMPANY, INC.
1306 East Sedgley Ave., Philadelphia 34, Pa.
Southwestern Division: 2512 So. Blvd., Houston 6, Tex.

and bookkeeping are proportionately charged to all the departments involved.

Accurate and complete records are kept for every job. The job service record shown in Figure 3 gives complete data as to the date of the call, serviceman, nature of call, time consumed, costs, parts or equipment sold, boiler make and rating, size of tank, type of system, grade of oil, oil supplier and any other information necessary to a complete understanding of the setup.

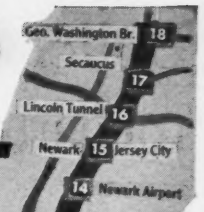
On each job requiring repairs, the mechanic fills out a form and turns it in. Immediately upon receiving this the service supervisor is dispatched to that job and fills in another form. This provides a complete check on the serviceman's recommendations.

Figures 6 and 7 show the productivity service record of the department for 1st quarter of 1953 and also the months of April. The department handles in excess of 300 calls per month and due to close supervision the repeat call average has been dropping steadily; from 14% in February to 11% in March to 5.7% in April. This good record is partly due to the verbal questioning each serviceman gets (see Figure 8) when an installation begins to fall in the "trouble job" category. The answers received help the manager and his supervisor pinpoint the trouble.

Trouble-Job Report Sheet

1. *Make of Burner ..... Size .....*
2. *Does it have a Fluid System .....*
3. *What kind of controls .....*
4. *How Many Burners .....*
5. *What size Oil Storage Tank .... How many .....*
6. *What size suction line .....*
7. *What size branch suction line .....*
8. *Are there valves on the suction line and where .....*
9. *Does it have a Heat Timer .....*
10. *Any means for circulating oil .....*
11. *How high is the suction line .....*
12. *How high is oil from preheater ....*
13. *Is cold air affecting any part of burner or piping .....*
14. *Are lines covered .....*
15. *Is it a water wall .....*
16. *Does it have below water line oil preheater .....*
17. *Outside temperature .....*
18. *How often trouble occurs .....*
19. *Do controls operate properly .....*
20. *Does burner operate properly .....*

Figure 8. *Each mechanic verbally answers these questions in the office if an installation calls back for service too often.*



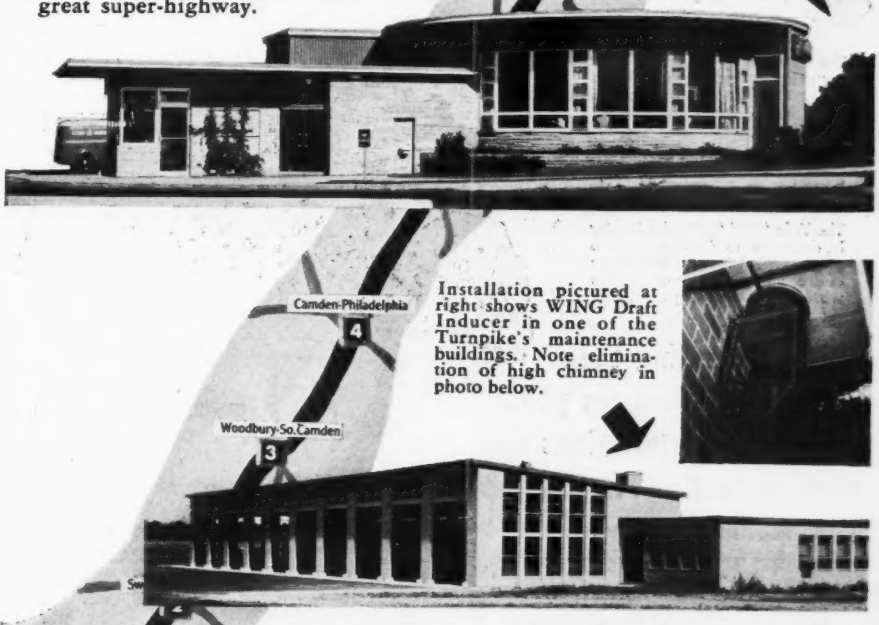
NEW JERSEY TURNPIKE

one of the world's greatest highways

USES WING DRAFT INDUCERS

New Jersey's heavily traveled 118 mile throughway was designed to be modern today—and modern tomorrow. The maintenance buildings, the restaurants, lunch rooms and service stations are low and streamlined. High chimneys would have been costly and would have spoiled the handsome appearance of these structures. Therefore WING Draft Inducers, which eliminate the need for high chimneys, are furnishing the draft requirements of the heating furnaces. A total of 11 WING Draft Inducers are installed in maintenance buildings, lunch rooms, restaurants and service stations. They meet satisfactorily the 24-hour service imposed by the requirements of this great super-highway.

Pictured below is one of the Howard Johnson Restaurants spaced at convenient intervals along the Turnpike. No chimney is visible, for WING Draft Inducers supply precise and dependable draft to the furnaces.



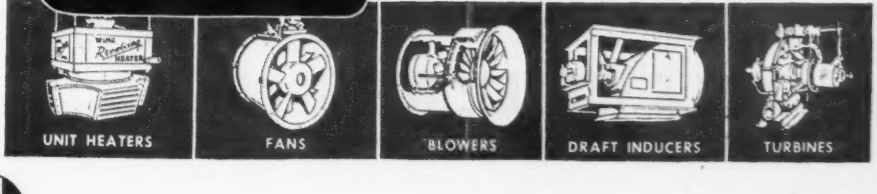
Installation pictured at right shows WING Draft Inducer in one of the Turnpike's maintenance buildings. Note elimination of high chimney in photo below.

Bulletin I-52 tells more about "Motorized Draft". Write for a copy.

Wing

L. J. Wing Mfg. Co.

66 Vreeland Mills Road
Linden, N. J.
Factories:
Linden, N. J. and Montreal, Can.



Boiler tube Temperatures measured with Thermocouples

COMMERCIAL & INDUSTRIAL oilburning

TO A LARGE DEGREE the accurate measurement of tube temperatures is an important factor in the safe operation of today's modern large steam boilers. Many conventional safety factors have been minimized by the high temperatures and pressures at which these boilers perform thereby leaving as the most readily available guide to reducing operational hazards the readings of tube temperatures. Actually there are eight different methods or techniques for installing thermocouples that can do this job. These techniques assure a positive contact between the temperature-sensitive element and the boiler tube.

Minneapolis-Honeywell has developed a high-speed scanning system, which when used with properly installed thermocouples, can enable an operator to locate immediately an excessively hot tube. This high-speed scanning system can provide as many as 270 temperature point readings at the rate of one point per second. In order to supply added protection, the scanning system can be arranged to set off both audible and visible alarms when at any time any single temperature exceeds its point setting.

A 12" strip chart record then spots the hot tube easily by clearly printing the temperature reading and its identifying number. This alerts the operator and tells him the location of the trouble. Temperature points are arranged in banks of 18 and each bank can have any set point within the range of the scanner system. Thus, boiler tubes that normally operate at higher temperatures than others provide no problem.

Suitable Wires

The thermocouples used in this device are made of No. 14 or 20 B&S gauge wire which by experiment has been found suitable for superheater tube installations. Fourteen gauge wire is used mostly, as its larger size gives greater service life. Chromel-alumel wires are used exclusively, as they are the most durable. Nevertheless, any reducing atmosphere surrounding the wires will shorten their service life.

With atmospheric temperatures up to 800°F. asbestos insulation is adequate for protecting the thermocouple wires. When temperatures exceed that point, porcelain insulators are used. If insulation is not used contamination will become progressive with the wires absorbing and combining with materials in the flue gas, particularly sulphur. This alters the temperature—emf relation of the thermocouple.

The proper installation of a thermocouple is very important as the func-

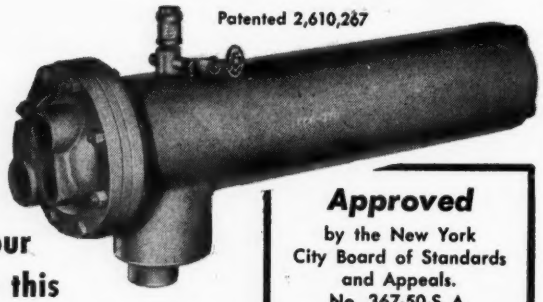
Get **DOUBLE*** **PROTECTION**

with... *Yula-trol*
FUEL OIL DETECTOR

and... *Yula* "YT"
"U" TUBE FUEL OIL HEATER
Patented 2,610,267

The *Yula-trol* is connected with a "probe" in the shell of the fuel oil pre-heater. Should the water be displaced from contact with the "probe" by oil or air, the *Yula-trol* instantly shuts off the heating unit and sounds an alarm.

The *Yula* "YT" "U" Tube Heater is designed to pre-heat No. 6 (Bunker "C") fuel oil efficiently and economically by use of hot water as the heating medium.



Approved
by the New York City Board of Standards and Appeals.
No. 367-50-S. A.

This outstanding *Yula* combination assures your oil burner installations this vital protection . . .

* By simultaneously shutting off the heating unit, sounding an alarm and flashing on a red light in case an oil leak occurs in the pre-heater.
* By acting as a Low Water Cut-off.

RESULT: Positive heating system protection at low cost.

Like all *Yula* equipment, the Yula-trol and Yula "YT" "U" Tube Heaters provide the maximum in efficient, economical operation at lowest possible cost. Get *Yula* efficiency . . . get *Yula* "Double Protection"

Other *Yula* Products

- Yula Straight Tube Fuel Oil Heaters
- Yula Suction Oil Heaters
- Yula Bayonet Type Oil Heaters
- Yula Type SS Conventional Heaters

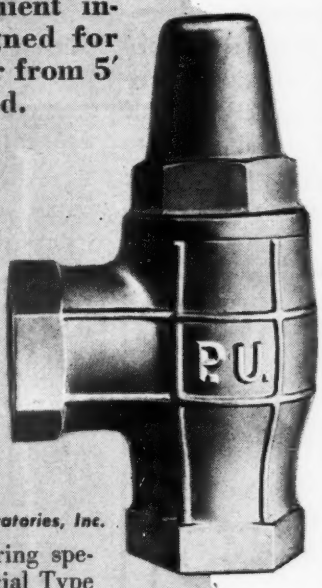
FOR COMPLETE INFORMATION
WRITE . . . DEPT. FO-12

YULA WATER HEATERS, INC.
166 WEST 225th STREET, NEW YORK 63, N. Y.

PREFERRED INDUSTRIAL
Anti-Syphon Valves

900 gallons per hour even with No. 6 oil...!

Angle type construction for convenient installation designed for heads up to 5′ or from 5′ to 10′ as required.



Preferred Industrial Anti-Syphon Valves can do the job better because they are designed better. A complete line of valves for pipe sizes of 1¼", 1½", 2", 2½" and 3". For use with all grades of fuel oil (including No. 6) and maximum capacity of 900 gallons per hour.

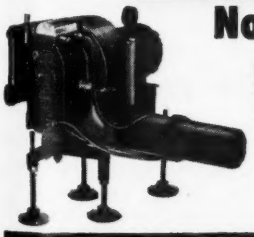
• *Approved by Underwriters' Laboratories, Inc.*

When ordering specify Industrial Type A and pipe size.

PREFERRED UTILITIES MFG. CORP.

1860 BROADWAY • NEW YORK 23, N. Y.

★ RAYFIELD ★
AUTOMATIC



No. 5 OIL BURNERS

REDUCE HEATING COSTS... INCREASE YOUR PROFITS

Burn No. 5 heavy fuel oil. Self-contained, all electric. Self-lubricating. Many new exclusive features. Write for full details.

GOOD TERRITORIES OPEN

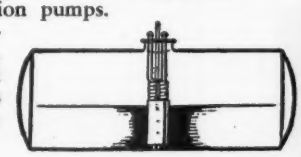
C. L. RAYFIELD CO.

2010-18 S. Halsted St., Chicago 8, Ill.

Solve Bulk Tank Preheating!!!

REMPE
"Hot-Spot" PREHEATER

Heats heavy oils in bulk storage to proper flow temperature before they enter the suction line —takes load off suction pumps. Heating medium — steam or hot water. Construction — all steel — connections for any diameter tank.

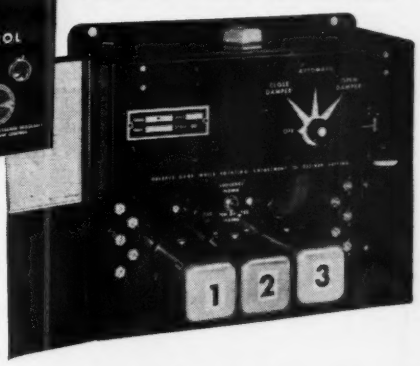


Write for bulletin

REMPE COMPANY

336 N. SACRAMENTO BLVD. CHICAGO 12, ILL.

Here's why leading Consulting engineers specify CFE CONTROLS



Closed and open view of CFE Damper Control for automatic sequence control of oil, gas and stoker-fired boilers. Designed for use with CFE indicating gages and "Lectricarm" drive unit.

CFE Control Systems cut fuel costs, reduce smoke, soot and fly ash, prolong life of boiler equipment and increase boiler safety. Damper Control illustrated contains, in one compact cabinet, all elements for safe, automatic, electrical remote control, from overfire draft. Standard unit provides:

1. **Purge period before firing**
2. **Open damper until safe flame is established**
3. **Modulated damper holding desired draft during firing period**
4. **Closed damper at end of firing cycle for gas or oil, continued modulation for stokers**
5. **Special "fail-safe" features for complete protection in event of failure of any part of firing or control systems.**

Exclusive optional features of CFE systems

1. ***Integral Minimum Draft Switch*** with time delay to shut down firing when draft is below predetermined rate.
2. ***Adjustable Start Feature*** to provide partial opening of damper for purging boiler without extinguishing pilot. Especially helpful on induced draft installations.
3. ***Purge Period after Firing*** before damper closes. Designed particularly for induced draft systems.

LECTRICARM DRIVE UNIT

Sensitive, remotely-controlled, mechanical automatic drive arm for operating dampers. Extra power overcomes binding or warped dampers.

For Assured Results, Specify CFE Instruments and Controls

The CFE line includes damper controls, steam controls, electronic smoke detector-control units, draft, air pressure and flue temperature gages.

Write for 12 page catalog and specification manual.

COMBUSTION INSTRUMENTS & CONTROLS — CLEVELAND FUEL EQUIPMENT CO. — FOR EFFICIENCY AND ECONOMY

CLEVELAND FUEL EQUIPMENT COMPANY

7316 Associate Ave. • Cleveland 9, Ohio

tion of even the finest temperature-measuring equipment can be altered or destroyed by improper procedures. The following methods place the thermocouple in intimate contact with the area to be measured:

1. Spot temperature measurement—The thermocouple measuring junction is welded to the boiler tube. Installation is inexpensive and easy.

2. Average temperature measurement—The thermocouple measuring junction is broken and one wire of the couple is welded to the boiler tube; the other wire of the couple is welded to the opposite side of the tube. The measuring instrument when connected to this couple indicates the average of the two temperatures at the welds.

3. Thermocouple peened into drilled holes—Holes are drilled either vertically or at a 45-degree angle, one-half inch apart, and to an approximate depth of 1½ times the diameter of the thermocouple wire. Wires are then inserted and peened into place. Some customers give the wire and insulation additional protection by fastening the wires to the tube with a Chromel strap and covering the assembly with alundum cement containing 5% loose asbestos. This method requires no welding but peening may be difficult in cramped quarters. The union is likely to be less secure than welding and the wall thickness of the tube is reduced at the drilled area.

4. Wires are held in a small steel tube welded to the boiler tube—A small diameter steel tube is welded to the boiler tube. The thermocouple measuring junction is placed within the steel tube and it is then flattened with a hammer, thus holding the thermocouple securely in place. The ther-

GUARD *Against Leaking Oil Tubes*

End CONTAMINATING OF BOILERS AND HEATING SYSTEMS

Approved by THE NEW YORK CITY BOARD OF STANDARDS AND APPEALS NO. 425-51-SA

with the **ALSTROM** "SAFE GUARD" OIL PREHEATER

- **completely "fuel-proof!"**
- **really heats oil!**

. . . suitable for both suction side and pressure side hook-up

This "Safe Guard" Double Transfer Unit gives uniform heating at correct temperatures, with maximum efficiency and provides absolute protection.

- compact • ruggedly constructed • beautiful finish
- triple tested • Visual Indicator, standard on all models

Every "Safe Guard" Oil Preheater is equipped with necessary connections for either below-water-line installation or *Vacuumatic installation.

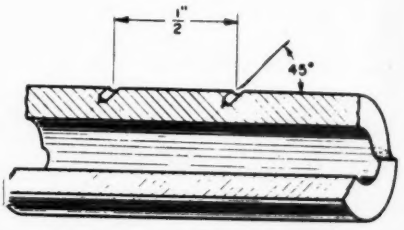
SINCE 1939 ALSTROM NY, NY

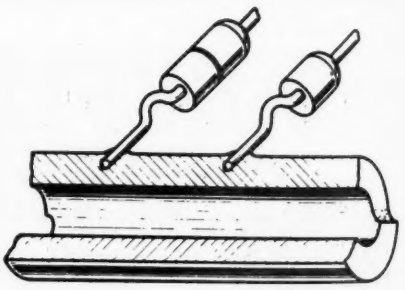
THE ALSTROM CORPORATION

790 EAST 176 STREET · NEW YORK 60, N.Y. · CY 9-2310

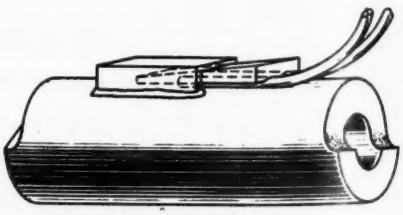
Manufacturers of: THE FAMOUS *VACUUMATIC TANKLESS • CAST IRON TANKLESS • DOUBLE TRANSFER OIL PREHEATERS • SUBMERGED COILS FOR EVERY PURPOSE • INDUSTRIAL HEAT EXCHANGERS

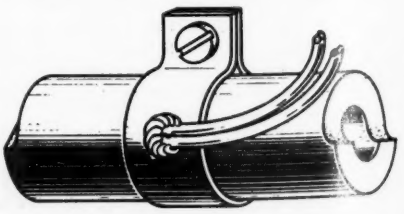
*Reg. U.S. Pat. Off.





Top row, *(1) Preparing tube for peening of thermocouple wires (2) thermocouple wires peened into tube.*





Bottom row, *(3) Bracket and wedge method of installation, and (4) thermocouple wires welded to pipe clamp.*

mocouple junction is easily installed, but the steel tube is difficult to attach.

5. Bracket and wedge—A small bracket is welded to the boiler tube. The thermocouple wires are then inserted and fastened securely by driving the wedge into place. The advantages and disadvantages are the same as those for the previous technique.

6. Thermocouple wires welded to clamp—Wires are welded to a pipe clamp. The clamp can then be attached to the boiler tube at any desired point. The clamp should be of stainless or moly-stabilized chrome steel to prevent corrosion and oxidation. Mounted by this method, thermocouples are easy to install and replace.

7. A nut having a small hole drilled through its side is welded to the boiler tube. The thermocouple wires are inserted into the hole and a bolt is screwed into place forcing the wires firmly against the tube. The advantages and disadvantages again are similar to those listed for methods four and five.

8. Protected thermocouple for superheater tube temperature measurement. This thermocouple was designed for extremely long life. Its stainless steel construction makes it particularly durable. The method of fastening to tubes is similar to the bracket and wedge method. Although long life is assured, the protected thermocouple is more expensive than the unprotected ones.

❖

Steam Generators used in Indochina Plant

A NEW TIRE RETREADING plant in the Vietnam section of Indochina, which operates on an around the clock schedule with a capacity of 4,000 to 4,500 retreads a month, is having its steam supplied by two 20 hp. Orr and Sembower Powermaster packaged automatic boilers fired with No. 3 oil. These 100 psi boilers are equipped with integral boiler feed systems, and the data received for designing the combustion air supply indicates that operation is taking place at 3,300 ft. above sea level.

This tire retreading plant is considered a strategic addition to Vietnam's economy and security. Since the retreading of tires is a great deal less expensive than the cost of new ones, the plant will also save the cost of importing new tires to replace the worn down ones. At the same time the plant's output will contribute to more efficient maintenance of Vietnam's motor fleet, which includes trucks and jeeps used in military operations against attacks of the Viet Minh communists. This plant is the first step taken to provide proper local retreading facilities.

Anderson publishes Manual to solve steam trap Problems

SOLVING STEAM TRAP PROBLEMS, a 36-page manual published by V. D. Anderson Co., Cleveland 2, Ohio, is both a buyer's guide and reference manual.

The text covers correct trapping practices for unit heaters, steam mains, header drips and other units. How to select proper size and determine lift of trap also is covered.

The manual explains theory, operation and maintenance and gives details of simplified piping.

Save Time and Trouble . . .

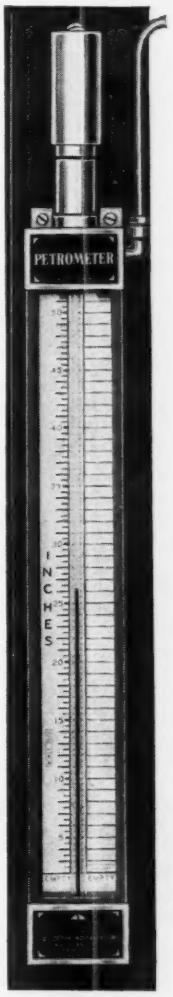
Install **PETROMETER**

TAKE ADVANTAGE OF THESE FEATURES:

Large, easy-to-read vertical scale gives tank contents at a glance. Eliminates the cumbersome measuring stick. The gauge can be installed at any elevation and up to ¼ of a mile away.

No troublesome moving parts—operates on the sound principle of the U-tube. Simple, dependable and accurate.

Easy to install—the tank assembly for the gauge can be installed when the tank is empty or when containing liquid. It can also be installed separately to complete the tank work. The gauge can be connected any time later. Just tighten one simple connection and the job is complete.



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TANK GAUGES

ON YOUR FUEL OIL STORAGE TANKS

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FOR TANKS 20 INCHES TO 50 FEET DEEP. • FULL YEAR GUARANTEE ON ALL GAUGES.

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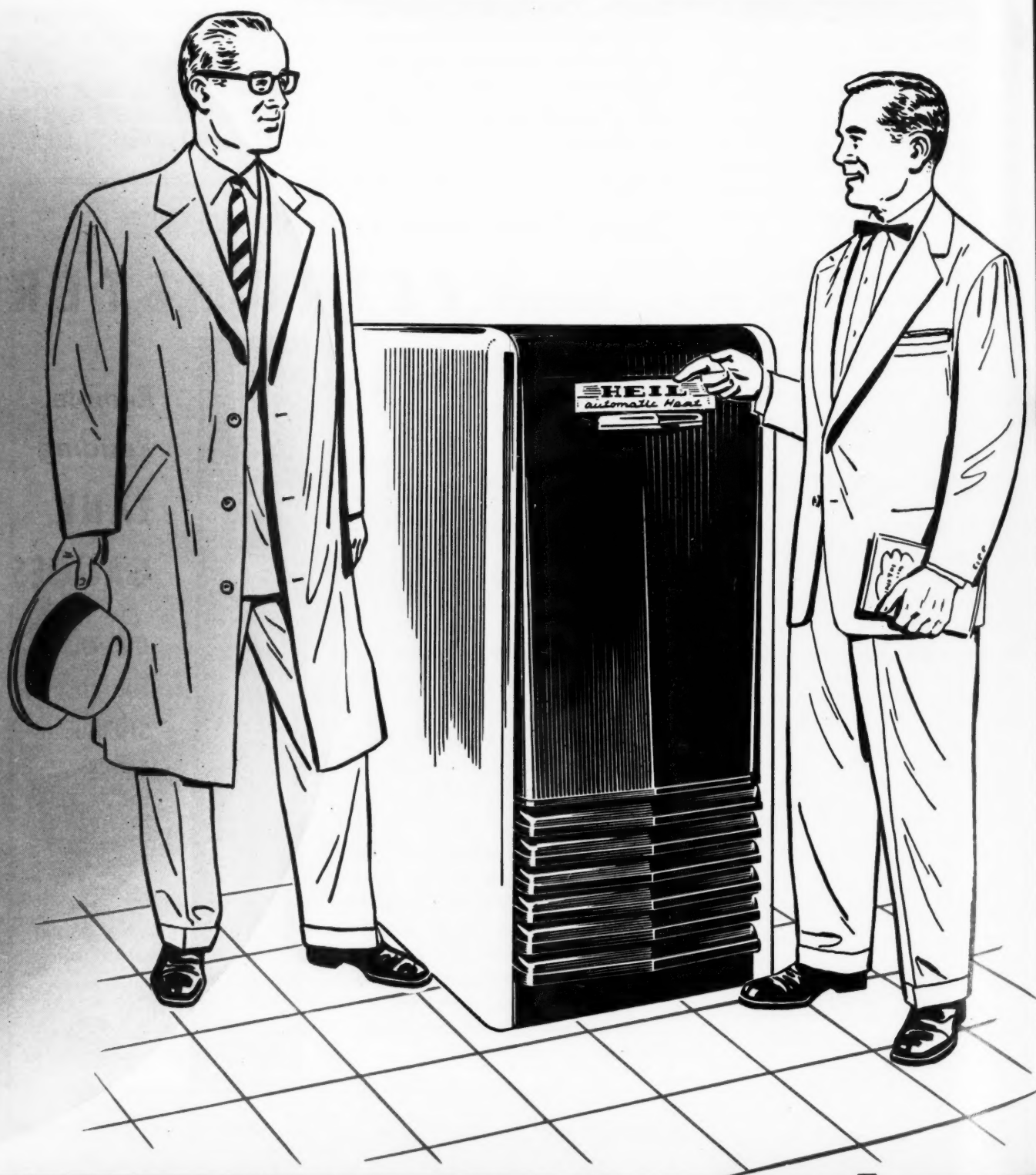
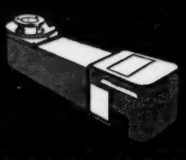


GAS-FIRED WINTER AIR CONDITIONERS

GAS-FIRED HIGHBOYS



CONVERSION GAS BURNERS

GAS-FIRED BOILERS

A HEATING PROSPECT LISTENS TO...

HIS Heating Dealer

When a man buys an outboard motor, or a car, or a television set, he's his own best judge of what he wants. But when it comes to heating, he goes to the expert—his heating dealer. Experience has shown that a dealer's recommendation quickly overrules any brand preference the prospect had.

Not many people in the industry understand the problems of heating dealers . . . where they can make money, and where they can lose it. Here at The Heil Co., we've made our dealers our friends, we've come to know them well. We've done it for just *one* reason —*the success of our business depends on our dealers* (and, of course, their distributors).

there's a line designed with a dealer in mind—

HEIL *Automatic Heat*

A big reason why HEIL units are outstanding in the industry is because we asked thousands of dealers what they wanted in a heating unit . . . then we gave it to them. We gave them factory assembled and wired units that cut installation time (an established average of $47.93 per job). We gave them units and burners designed together for peak performance. We gave them engineered combustion for the economy that means satisfied customers. And we gave them quality worthy of their own good reputation.

When we had equipment that was bound to help dealers make more money on installation and servicing, we gave it standout styling to help HEIL Automatic Heat appeal to prospects. To that we've added a complete, powerful array of sales aids. And we've wrapped it all up in a friendly sales policy that has thousands of dealers saying. "We *like* doing business with HEIL." Contact your nearest HEIL office today.

HEIL Automatic Heat is sold through wholesale distributors. A few good territories are available.

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OIL-FIRED BOILERS

CONVERSION OIL BURNERS

OIL-FIRED HIGHBOYS

OIL-FIRED WINTER AIR CONDITIONERS

Esso Head at Asbury sees return to Competition

SPEAKING BEFORE the 15th Annual Convention of the Fuel Oil Distributors Assn. of New Jersey at Asbury Park on April 30, Stanley Hope, president of Esso Standard Oil Co., said that with the return of surplus capacity in all oil industry functions we can look for a revival of competitive conditions like we had before World War II.

Hope pointed out that the industry, in the interest of National security, had built up a strategic spare capacity in both production and refining of about a million barrels a day greater than present output. The tanker picture is reversed from a year ago when high premium charter rates were commonplace. Now there are in service the equivalent of 1,540 T-2 tankers, with additional ships under construction or on order to increase this by 60%. The very existence of this spare capacity, he feels, is bound to have an effect on the industry.

"We may have to learn all over again," he stated, "how to conduct operations in an atmosphere of ample supply and spare capacity."

Speaking of heating oil, Hope predicted that next winter will see 9½% more power burners in service than last winter and that the demand for middle distillates will be up something more than 10%.

He anticipates that the industry should enter next heating season with a primary inventory East of the Rockies of about 150 million barrels, requiring a stock build-up this summer of 3 million barrels a week.

Gas Competition Panel

Another convention feature was a three-man panel on "Meeting Gas Competition." The participants, all association members and all second generation in fueloil businesses, were Donald Lawes, Jr., of Shrewsbury, Robert E. Harnisch of Irvington, and Theodore Holmes, Jr., of Ridgefield. The moderator was Robert Gray, editor of FUELOIL & OIL HEAT.

Lawes put special stress on the need for action now to combat gas rather than letting it creep in and spoil the profits for oil men. In his home county, Monmouth, natural gas came in a little over a year ago and has gained a thousand new home installations while the fueloil men have shown little concern. Pointing to the history of how the anthracite industry refused to wake up while oilheating was making great strides he strongly urged his audience not to let gas do it to us. We should spend at least as much on promotion and public relations as the gas industry does in local markets, he feels.

Lawes said that the industry did get one break . . . the natural gas rates are not as low as originally proposed so that oil is cheaper for heating. Nonetheless, gas costs are attractive for small homes where cooking, heating and water heating are all used.

Harnisch had the job of telling why he's sold on oilheating. First, he likes the business because there's money in it, which is rarely true of anything connected with gas heating at the retail level. Next, he likes oilheating because the fuel demand is constant . . . the customers stay hitched if they're well treated. His company left coal for oil, as did many others in the state, but it can't go into the gas business.

Following the thought expressed by Lawes of oil having taken over the coal business, Harnisch thinks that gas can't hurt oil nearly so much particularly if we get active about it. Oil beat coal in the development years of the industry in spite of considerably higher prices just because it was much more convenient for the user. He sees no parallel with gas. True, gas costs more, but it can offer nothing in added convenience over oil. "Oil is our future," he concluded, "we can and will meet gas, even at the builder level if we put our minds to it."

Holmes used as a theme, "Keep your customers happy and you have made offense your best defense against gas." If your customer is well satisfied with your oilheating he'll occasionally mention it to friends. If on the other hand

(*Please turn to page 98*)

Townsend named ESPA President, McIntosh traces fuel Trends

THE 13TH ANNUAL MEETING and trade exhibit of the Empire State Petroleum Association, New York, took place on May 18 and 19 at the Hotel Roosevelt. Ten companies exhibited lines of petroleum handling and accessory equipment on the mezzanine floor of the hotel, adjacent to the meeting rooms. The program consisted of a luncheon on each day, followed by an open session that featured speakers and discussion of topical subjects.

The membership meeting on May 19 elected Elbert J. Townsend, Townsend Oil Co., LeRoy, N. Y., president, succeeding Thomas A. Brown, Sentinel Oil Co., New Rochelle, N. Y. These four vice-presidents were re-elected: George L. Savory, Savory Oil Co., Inc., Binghampton, N. Y.; Frank D. Bertch, Webaco Oil Co., Webster, N. Y.; Richmond F. Meyer, Mid-Hudson Oil Co., Poughkeepsie, N. Y. and Joseph G. Mintzer, Mintzer Petroleum Co., North Troy, N. Y. Harry B. Hilts was renamed secretary and C. A. Lockard continues as assistant secretary.

Hilts led a discussion after the membership meeting on "Imports and the small Businessman" and on the subject of imports, ESPA adopted a resolution that formally registered its opposition to proposed legislation that would restrict fueloil imports.

Speakers on the first day of the meeting included: B. L. Ray, Esso Standard Oil Co., who reviewed "Trends in gasoline Marketing" and the Hon. John J. Burns, New York State Assemblyman and sales manager, Nassau Utilities Fuel Corp., Roslyn, N. Y. who described ways of "Working with your Supplier." H. N. Emerson, Atlantic Refining Co., discussed "Transportation Factors in the com-

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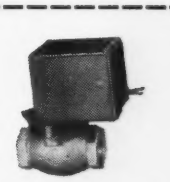
One Compact Yet Complete Line Answers Every Service Need!

How would you like to reduce inventory? Simplify ordering? Ease stocking and handling? Obviously, you would . . . *and you can* without reducing your ability to fill orders one iota! How? By simply following the lead of thousands of leading wholesalers and dealers who have answered these and other problems with **DETROIT** Controls. For with **DETROIT** Controls you handle one compact yet complete line that answers every heating need. That's because all **DETROIT** Controls, built by men who know your business, understand your problems, are designed for maximum adaptability and flexibility. **DETROIT'S** remarkable *Timed Cycling* Thermostat, for example, with its exclusive parallel heater gives you *one* thermostat for *all* jobs. As a result there is no choosing from a large assortment of heaters—no adjusting of variable resistors. In addition, all **DETROIT** Controls are quality-built of top quality materials to assure long, continuous trouble-free operation. But why not find out for yourself? For complete information concerning the superior **DETROIT** line contact your nearest **DETROIT** wholesaler or write the factory direct.

Do You Know the DETROIT V-579 "BI-FLEX" GAS VALVE STORY?



Here is an absolutely quiet valve which is not only designed to function with natural, L.P., or sour gases, but also to function independently of gas pressure. Performance proven on thousands of installations this snap-acting, positive closing, "Bi-flex" motor-actuated valve is famous for its reliable operation. Rugged and compact design makes it easy to install and service . . . compensated for changes in ambient temperature . . . ½" to 1¼" sizes.

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petitive Supply of bulk Fuels to the Empire State."

"Fueloil Markets and competing Fuels" was the topic discussed by Albert J. McIntosh, economist, Socony-Vacuum Oil Co., following a luncheon on May 19. He was the first of three speakers. Explaining that he was bringing up-to-date the forecasts he had made about three years ago, and which had proved too conservative, he pointed out that we still are riding an unprecedented boom that has lasted six years and which will probably continue for another year. Energy requirements to support such industrial activity have been enormous and "the natural gas industry has grown beyond expectations, and at the same time the fueloil demand has averaged 7% gains annually."

Gas and Distillate Fuels Used for Space Heating Total United States

(Expressed in Equivalent of Thous. Barrels Daily)

Year	Gas (All Types)	Distillate Fuel Oils (Heating and #1 Range Oil)	Total	CHANGES FROM PRIOR YEAR Gas	Distillate Fuels	Total
1950	397	654	1,051			
1951	500	756	1,256	103	102	205
1952	617	818	1,435	117	62	179
1953	679	869	1,548	62	51	113
1955	814	973	1,787	135	104	239
Annual Rate				67.5	52	119.5

NOTE: Data for 1950, 1951 and 1952 adjusted to normal weather rate.

And, "Where do we go from here?" The PAD report on future gas requirements and supplies points to a continuing gain in sales in the coming three years, he said, and, "If this expansion is achieved, what will happen to the demand for fueloils? In general my conclusion is fairly optimistic. In other words, fueloil should continue to increase, but at a lower rate. Export losses for petroleum will offset some of the gains looked for domestically."

On charts McIntosh demonstrated the trends of fueloil use from 1937 through 1955, showing that District 2 and 4 registered the largest gains in distillate fuel consumption and that District 1 was ahead on residual use.

"Gas available for residential space heating," McIntosh went on, "and which is estimated to be sold for that purpose, is expected to increase by 1955 some 63% over 1951 and double the sales of 1950. The gas for other uses in residences is expected to increase much more moderately and show only a 26% increase between 1951 and 1955. Gas that will be used for commerce and industry, however, is expected to increase about 43%, with the largest increase taking place in the industrial rather than commercial field.

"On an overall basis, these forecasts show that 66% more gas will be sold in 1955 than there was in 1950, equivalent to 1,300,000 barrels of oil per day. This is just about as much as the use of all distillates in the United States in 1952, including home heating, diesel uses and all other distillates consumed. This comparison provides a better ap-

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The new offset angle tank valve is furnished with 3/8", 1/2" or 3/4" inlet and 3/8" or 1/2" compression or flared outlet . . . made in fusible or non fusible types. For greater fire protection in the home, we strongly recommend the use of the fusible type, which can be manually operated and costs no more than the conventional tank valve.
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"Why Do It With An Oil Burner?"

Only *Combustioneer*® permits OIL and AIR ADJUSTMENTS *while the burner is operating!*

MODEL dLP

Available Now!

New Low Pressure TWO STAGE FUEL UNIT WITH SELF PURGING RESERVOIR!

You wouldn't let a mechanic adjust the Carburetor on your car with the motor off, so why would you even consider adjusting an oil burner while it is off . . . and you must with *ordinary* oil burners . . . but not **Combustioneer.**

Combustioneer . . . IS BETTER

Combustioneer is the only Low Pressure Oil Burner on which secondary air and oil capacity adjustments can be made *while the burner is running!* A simple screw adjustment permits *any exact* fuel capacity selection between **.50** and **4.00** g.p.h.

AGAIN it's Combustioneer

Another first. The new **Combustioneer** dLP Oil Burner has a TWO STAGE Fuel Unit with a *Self Purging Reservoir.* For inside or outside tank installations . . . draws up to **38** ft. horizontally plus up to **15** ft. vertically.

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- Adjusts oil and air while burner is running
- Two Stage "Hydra-Vated" fuel unit
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preciation of the additional energy which may come from gas in the United States. We emphasize that this is the increase during the five year period. In District 1 by 1955 the report indicated that there might be additional gas vs. 1950 equivalent to 300,000 barrels of oil a day, up 84%. A little will displace petroleum products, some of it is needed for normal growth and some will displace coal.

"However, it is extremely important to realize that this additional gas, if it materializes, is equal to more energy than the additional distillate fueloil which we have forecast will be used in District 1 in 1955 vs. 1950.

Total United States

Competition of Gas and Petroleum in Commerce and Industry

(Expressed in Equivalent of Thous. Barrels Daily)

				CHANGES FROM PRIOR YEAR		
Year	*Gas (1)*	*Distillate & Residual Fuel Oils (2)*	*Total*	*Gas*	*Distillate & Residual Fuels*	*Total*
1950	1,231	953.5	2,184.5			
1951	1,397	919.9	2,316.9	166	—33.6	132.4
1952	1,589	906	2.495	192	—13.9	178.1
1953	1,777	972	2,749	188	66	254
1955	1,996	998	2,994	219	26	245
Annual Rate .				109.5	13	122.5

(1) Commercial—Industrial uses.
(2) Gas and Electric Utilities, Smelters, Mining and Manufacturing, Oil Companies and Miscellaneous (Excluding Diesel Fuel Oils).

"In the table we have compared the uses of gas with distillate fueloils as reported for the last couple of years and the results of our forecasts through 1955. One of the interesting things from this study is that in this five year period these two fuels are estimated to increase about 70% in the space heating market. The analysis shows also that gas is expected to obtain a larger share of the increase than distillate fueloils, which has been the case in recent years. From this study one can also see how the forecasts of additional petroleum fuels which will be used for heating line up with what the gas people have forecast."

A similar comparison in sales to commerce and industry, lower portion of the table, McIntosh said, indicates that "According to the gas industry's forecast there will be some 60% more gas sold the industry in 1955 than there was in 1950, but for petroleum fuels we think there will be less than 5% additional sold. In fact, during recent years small decreases (mostly residual fuels) have shown up in these kinds of sales. We have forecast, however, that some of these markets may be recovered, but only a minor increase over a five year period is looked for."

Projecting the number of dwelling units heated by various fuels, McIntosh concluded that "at the end of 1955 . . . the forecasts indicate a continuation of loss by coal, but at a somewhat slower rate than has been the case in the postwar period. The largest number of new dwelling units are estimated to be heated by gas, with oil trailing gas somewhat."

½ Doz. SATISFIED CUSTOMERS

Yes, **every new carton of 6 Honeycomb Filter Tubes mean another half dozen satisfied oil burner owners.**

The *better* filtration by *Fulflo Filters* completely removes all fuel-oil impurities which can cause fouled points, clogged nozzles, stuck valves or scored bearings. Such unequalled performance develops customer satisfaction with the alert oil burner dealer who stocks the Honeycomb Filter Tube for both initial installation and refill.

COMMERCIAL FILTERS CORPORATION
2 MAIN STREET, MELROSE 76, MASSACHUSETTS

The OAKMONT Oil Boiler

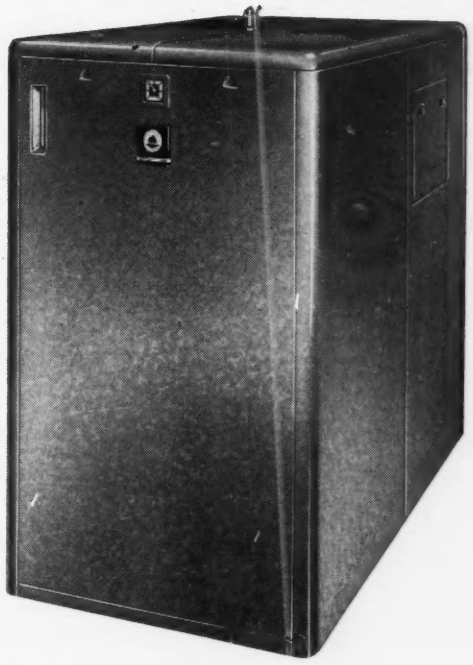
by AMERICAN-Standard has plenty of sales appeal*

* Precision Engineering-Quality Construction

* Efficient, Automatic Controls

* Quiet, Economical Performance

* Smart Appearance



■ The moderately priced Oakmont oil boiler is tops in the field of oil heating. Its good looks win the approval of even the most critical shopper. Its quiet, trouble-free performance provides the clean, comfortable warmth that keeps customers sold for life.

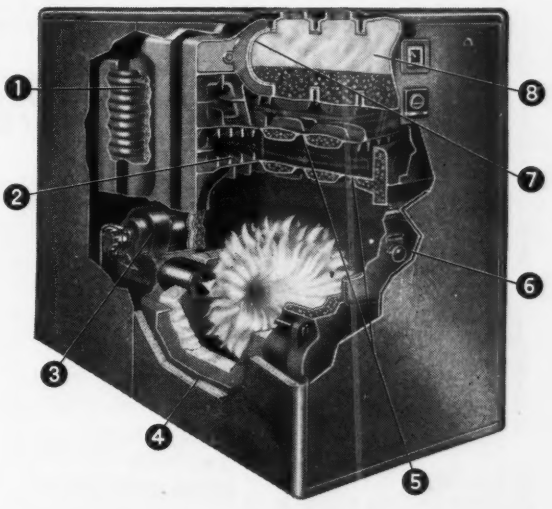
Designed for small to average sized homes by engineers who really know oil fuel, the Oakmont is built to give fast, economical heat in either steam or water installations.

You can install the Oakmont as a complete oil heating unit with its own Arcoflame oil burner, or you can sell the boiler separately for use with any other adaptable burner.

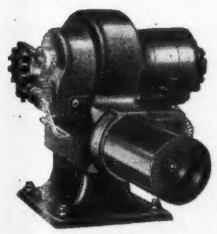
For more details about the Oakmont oil boiler, as well as information on American-Standard boilers for other fuels, contact your Wholesale Distributor. **American Radiator & Standard Sanitary Corporation,** P. O. Box 1226, Pittsburgh 30, Pennsylvania.

Ever see so many quality features in a moderately-priced oil boiler?

1. Built-in water heater (tank or tankless type) — provides year 'round hot water.
2. Finned flue surfaces — extract maximum heat from hot gases as they pass to chimney.
3. Arcoflame Oil Burner—special flange model designed for Oakmont. Boiler and burner operate as a unit for top efficiency.
4. Insulated jacket — streamlined metal jacket in Forge Red, with heavy layer of insulation to prevent excessive heat loss.
5. Tight joints — machine ground contact surfaces of doors and sections prevent short-circuiting of gases, uncontrolled infiltration of air, and escape of odors.
6. Observation glass—for observing flame without opening door.
7. 7-inch nipples — extend below waterline and insure rapid circulation of boiled water.
8. Steam space — especially large steam releasing area insures dry steam at entrance to piping.



ARCOFLAME Oil Burner



Featuring the famous fuel-saving "sunflower" flame, the Arcoflame operates efficiently with No. 1 and No. 2 domestic fuel oil. Available with capacities ranging from 1 to 7 gallons per hour. Ideal for installation in new equipment or for modernizing old heating units.

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Summarizing, McIntosh said:

"Three years ago we were thinking that the recession which might have come about during last year or this year would have had a depressing effect on the consumption of petroleum fuels. We have not run into that recession and, therefore, our present paper does not reiterate that kind of gloomy outlook. Nevertheless, we still think that gas will take a substantial part of the new home markets for heating and energy, but we feel that there will be left a fairly substantial and increasing market for petroleum in the United States. In our opinion some refiners are going to lose some of their exports and for them the increase in the domestic sales of petroleum will be partly offset. In District 1 we look for quite a healthy growth in the home heating business this year and over the next couple of years both for distillates and residual fueloils. We are also optimistic over public utility consumption of residuals with some growth over the next couple of years. We are not quite so optimistic for the consumption of kerosene, particularly at the retail level.

"It may be that the estimates of the new gas which may be sold by the gas utility industry will prove to be too optimistic which preliminary figures for 1952 hint. Some of the conditions under which these estimates were made may not turn out to be as rosy as they were contemplated. If gas sales are not quite as large as these tables indicate, then the net effect would be that oil might sell at a little bit higher volume level, but we think the primary effect would be that coal would be the gainer."

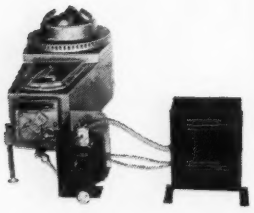
Credit and Collections

The second speaker on the program was F. Raymond Kraemer, financial consultant, Mineola, N. Y., who covered the subject of "Credit and Collection Management." He described the broad aspects of the subject, emphasizing that a credit and collection manager must be versatile, talented and, in general, must understand and be capable of working out techniques, must understand the liquid financial requirements of his company, must have a working knowledge of economics and understand the investment requirements of his company.

Being responsible for the development of a balanced credit and collection program, the credit manager must be able to analyze credit, have a capacity for investigation of credit applicants, be able to assign proper credit limits, exercise continuous control over credit extension and put into effect an accurate collection follow-up of past due accounts. These multi-fold obligations, Kraemer pointed out, benefit the company in several ways. A properly executed credit and collecting program will improve activity in the sales, accounting and other company departments, should increase sales, reduce accounts receivable to a minimum, permit expansion without additional capital, allow discounting of bills where terms permit and improve a company's credit position with its suppliers.

Whether a company has a credit manager, Kraemer remarked, or if a principal of the business handles his own credit, the person responsible for credit management must understand

We double dare ya to install just one H.C. Little oil burner!



H. C. Little
CONVERSION OIL BURNER
NOT a pot burner
NOT a pressure burner
NOT a rotary burner
- Unique, patented H.C. Little "low temperature carburetion" design.
- No moving parts to service—no motors, blowers or fans.
- Seven sizes—35,000 to 350,000 BTU
- Listed by U.L.
- Automatic, electric ignition burners can be operated by hand during electric power failure.

The day you do, you'll be sold! Like this dealer-booster:

"I still remember the day I fired up my first H. C. Little burner installation. Here was a beautiful, clean, hot flame. Low stack temperature with high CO_2. And quiet! Man, was I sold!

"That was more than 250 installations ago and I've banked a lot of profit since then selling H. C. Little units. Your equipment has what it takes to sell a man on the first demonstration and keep 'im sold for life on performance."

Take the first step TODAY toward that first installation. Send your name and say you're interested. A representative will contact you.

H.C. Little Burner Company, Inc.
25th Anniversary H.C. Little Burner Co Inc

Over 200,000 installations!

Head Office: San Rafael, Calif.
Distributors in 18 Principal Cities

Standard is always first with the finest

here it is...
the floor register everyone wants!

STANDARD'S NEW PERIMETER FLOOR REGISTER

with Standard's exclusive

Dialamatic Control

Standard's new. exclusive dialamatic control gives you POSITIVE HEAT CONTROL. The set screw arrangement means easy balancing, trouble-free operation!

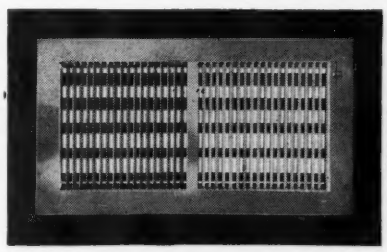
SPECIFICATIONS

The blades of model PH-142 are fabricated of 16 gauge steel, the blades are set in a fixed-fan angle degree for even deflection. The Frame is of one piece, 18 gauge steel construction. The Louvre box fabricated of 16 gauge steel. Packed one to a box, and 20 to a master carton. Comes handsomely finished in gleaming, durable metallic-lustre finish.

Duct opening	Overall of Louvre Box	Overall of Face	Open Area	Depth of Box
2¼" x 14"	2⅛" x 13¾"	3¾" x 15⅜"	80%	2⅛"

THE NEW, IMPROVED *multiple valve* REGISTER

Has Horizontal Multiple Valve Louvres, and 3/16" turned down edge for flush sidewall installation. The attached sponge rubber gaskets are an *extra* feature that prevents escape of air and chipping of wall surface. The Louvres are adjustable so that the flow of air may be directed either downward, straight forward, upward, or to complete shut-off.

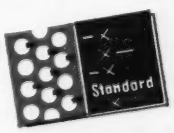


MODEL NO. 331

Metallic Finish standard finish on this style

MEMBER NATIONAL WARM AIR HEATING AND AIR CONDITIONING ASSOCIATION INDOOR COMFORT

write now!



No cost or obligation to you

Standard Stamping and Perforating Co.

3119 W. 49th Place
Chicago 32, Illinois

Gentlemen: Please send me your new pocket catalogue at no cost to me.

NAME_____

ADDRESS_____ CITY_____ ZONE_____ STATE_____

COMPANY NAME

fueloil & oilheat

his firm's investment capital requirements. Inadequate investment capital inevitably will destroy the effectiveness of any credit and a collection program, no matter how sound it may be.

Summarizing, Kraemer said, "It is obvious that collection conditions are changing and it probably will be more difficult to collect money than it has been. Results of a survey show that while 55% of the companies interviewed expect little or no change in collection trends, the other 45% were emphatic in saying they expect collections to be more difficult in 1953. Your control of credit and collections now, and the way that you have organized them in the past, will determine the effect this condition will have upon your business. Certainly, all petroleum marketers should be concerned about this trend and be sure that their credit and collection programs are basically sound and efficiently administered."

W. Chalmer Burns, chairman of the New York-New Jersey District, Oil Industry Information Committee, and president of Hartol Corp., was the concluding speaker. He discussed public relations as they apply to the petroleum industry generally and to the independent marketer, specifically. As an illustration of public relations within the industry, Burns asked "How much do you think it would have cost your association, or you as individuals, to have collected and compiled the statistical information that Mr. McIntosh's company provided for you without cost? The same thing applies to the other informative papers that have been contributed during this convention for your's and the industry's benefit."

Public relations actually is a term that can be translated into public good will, he continued, and the program of the Oil Industry Information Committee provides a way for the oil marketer to improve his good will. He outlined briefly the theme and purpose of the program, explaining the competitive situation that exists within the oil industry, and enumerated the variety of films literature, booklets and other information available from OIIC for marketers to use in their local promotion campaigns. Burns referred specifically to "Prometheus was a Piker" and "40 Ways to save Money with your Oilburner" as two booklets that the oil marketer would use effectively and announced publication of a brand new one, "Putting the 'PR' in Petroleum," which outlines the reason for and make-up of a public relations program that a marketer could organize.

Burns told of the free advertising mat service provided by the OIIC and told how information on the entire program is available from District office. He concluded with the OIIC slogan, "Those who know you sell, think well of you."

A banquet, over which Richmond F. Meyer presided, was the final activity of the convention.

❖

Roland W. Campbell, after an absence of nearly two years due to recall to active duty in the U.S. Navy, has returned to Hayward Oil Burner Corp., Cambridge 38, Mass., as sales manager. Campbell will cover the eastern U.S. on Hayward oilfired equipment.

FUEL OIL HOSE . . .

STYLE L-60. **As its name implies, this is a tough, durable hose made especially for handling fuel oil, kerosene and other distillate products. Availability in extra long lengths makes it particularly desirable for suburban home deliveries. Extremely flexible. Double static wire bonded to couplings for static protection. Sizes 1", 1¼" and 1½".**

TANK TRUCK UNLOADING HOSE

"NEWTYPE," STYLE R-47. **Kinkproof, lightweight, flexible. Patented wire-reinforced construction holds full diameter even on sharp bends, assuring full, fast flow. Brown wear- and weather-resistant oilproof cover. Sizes 2" to 4".**

Mail Coupon for Details and Prices

GOODALL RUBBER COMPANY
Whitehead Road, Trenton 4, N. J. DATE .....

Please send details and prices on the following:
☐ "Long-Life" Fueloil Hose ☐ "Newtype" Tank Truck Hose

FIRM NAME .....

ADDRESS .....City.....Zone....State.....

Est. 1870

GOODALL RUBBER COMPANY

GENERAL OFFICES, MILLS and EXPORT DIVISION, TRENTON, N. J.
Branches: Philadelphia • New York • Boston • Pittsburgh • Indianapolis • Chicago • Detroit • St. Paul
Los Angeles • San Francisco • Seattle • Spokane • Portland • Salt Lake City • Denver
Houston • Goodall Rubber Company of Canada, Ltd., Toronto • Distributors in Other Principal Cities

4 Powerful Reasons why costs go down with CHEVROLET ADVANCE-DESIGN TRUCKS on the job

EXTRA POWER WITH ECONOMY! More hauling power, greater economy! That's the result of new 7.1 to 1 compression ratio of improved Loadmaster engine on 5000 and 6000 Series heavy-duty and forward control models—optional on 4000 Series heavy-duty trucks. Thriftmaster engine in light- and medium-duty models provides traditional Chevrolet economy.

ENGINEERED FOR THE JOB! With Chevrolet, you buy a truck that is exactly right for the job. Not too big. Not too small. You get a truck engineered from the ground up with your job in mind—with the right tires, springs, axle, clutch and engine. You get a truck that will stick on the job day after day, and do your work at lowest cost.

BUILT TO LAST! The extra-sturdy construction of Chevrolet advance-design trucks means longer life, even lower costs. Now, Chevrolet trucks are brawnier than before—with heavier, more rigid frames, with greater ruggedness and stamina built right in. These are the toughest and the sturdiest Chevrolets ever.

THE LINE LISTS FOR LESS, TOO! With all the solid superiorities that Chevrolet offers—with all their special features and advantages—this great line of haulers lists for less than any other trucks of comparable size and specifications. See your Chevrolet dealer. Chevrolet Division of General Motors, Detroit 2, Michigan.

CHEVROLET ADVANCE-DESIGN TRUCK FEATURES

TWO GREAT VALVE-IN-HEAD ENGINES—the Loadmaster or the Thriftmaster—to give you greater power per gallon, lower cost per load. **POWER-JET CARBURETOR**—for smooth, quick acceleration response. **DIAPHRAGM SPRING CLUTCH**—for easy-action engagement. **SYNCHRO-MESH TRANSMISSION**—for fast, smooth shifting. **HYPOID REAR AXLE**—for dependability and long life. **TORQUE-ACTION BRAKES**—on light-duty and medium-duty models and on front of heavy-duty models. **TWIN-ACTION REAR BRAKES**—on heavy-duty models. **DUAL-SHOE PARKING BRAKE**—for greater holding ability on heavy-duty models. **CAB SEAT**—with double deck springs for complete riding comfort. **VENTIPANES**—for improved cab ventilation. **WIDE-BASE WHEELS**—for increased tire mileage. **BALL-GEAR STEERING**—for easier handling. **UNIT-DESIGNED BODIES**—for greater load protection. **ADVANCE-DESIGN STYLING**—for increased comfort and modern appearance.

CHEVROLET

first in demand in value in sales

New Jersey Oilmen meet at Asbury Park

(*Begins on page* 88)

he's inconvenienced or angered by your people, he'll mention that to more people, in Holmes' opinion. Avoid bookkeeping errors; never let customers run out of oil; make service calls promptly, and if any adjustment is in order make it immediately and willingly . . . don't give him a chance to brood over it, he went on to say.

Estimating that each customer is met by someone in the organization or spoken to on the phone a dozen times a year, Holmes stressed utmost courtesy from every employee.

Too many oil men, in his opinion, send out only two customer mailings a year—spring and Christmas. The most successful marketers, he believes, get something into the mail once a month . . . a simple letter of appreciation, an envelope stuffer, an explanation of any change in methods or price, just so you keep them reminded that they are being well served.

Other ways mentioned by Holmes to make your company and industry solid in the community included: join business clubs and other civic groups and take an active part in all community problems and affairs; push budget selling for fueloil and include a burner service contract in the budget payments (the cost of gas service is in the fuel and hence in their budget payments); keep your trucks bright and shiny, also your office, bulk plant and whatever else the public sees; include in your service plan a midwinter check-up . . . the customer is nearly always pleasantly surprised and it's a good way to get full time from your men.

Gray mentioned that last year New Jersey got 14,000 gas burners and 65,000 new oilburners, a comfortable ratio for our side that should not be hard to hold if we do the things these men talked about.

Public Relations

On behalf of the OIIC, W. Chalmers Burns, chairman of the New York-New Jersey district, and president of Hartol Petroleum Co., expressed the opinion that with fueloil now a 2½ billion dollar industry it needs a public relations program to keep it alive. Mentioning how few people know much about us, he cited as an example a recent interview survey in Wichita in which only 3 out of 80 persons could name an independent oil marketer, while 70 out of the 80 yawned over any distinctions between majors and independents. Burns described the services OIIC provides for marketers in the way of booklets and films, further mentioning that out of 10 full page industry advertisements in popular magazines this year one is to be on oilheating.

The second morning there was another panel on "Your Business" moderated by Willard Hedden of Dover. Again the participants were all association members. Steve Terleski of Phillipsburg spoke on "Office procedure and credit"; Nelson Thompson of Princeton covered "Organization of your business"; Michael Formichella of Summit discussed delivery methods; John Blondel of Montclair emphasized "Public Relations and advertising."

(*Please turn to page* 102)

"I'LL GUARANTEE TO CURE 'Pulsation-itis' IN ONE TREATMENT

(ON 0.65 TO 1.65 G.P.H. FIRES)" SAYS SMITTY

Low-stack plus zero draft is duck soup for a Hart HCM with Supra-Flame head. At least it has been so far on over 16,000 jobs! Now, I know that someday we'll run into a job we can't lick — nothing's perfect. But we've been sticking our neck out for three years—asking for the tough pulsating jobs to be switched to Hart HCM (0.65 to 1.65 GPH) with Supra-Flame, and so far we've never missed.

EARL K. SMITH

"FOUR OTHERS FAILED" SAYS DEALER

One dealer* 23 years in the business says "In the last 16 years have had 4 different makes of burners on one job—done everything I knew to stop pulsations, even sacrificing a good bit of efficiency. Then I installed a HART HCM with Supra-Flame head. That ended pulsations, and I'm getting full efficiency."

*Name on request.

ITS GREATEST FEATURES

Like they say in advertising, its GREATEST FEATURES are:

1. Absolute cure of pulsations (we'll GUARANTEE this).
2. Perfect silencing of all mechanical and combustion sounds.
3. Utterly simple — eliminates usual adjustments and frequent cleaning.
4. High efficiencies of 10 to 12% CO_2 in smaller sizes of tips and 11 to 13% on the larger (1.35 and up).
5. NO ADJUSTMENTS. *Head is welded-in* as part of draft tube and nozzle assembly. No field-setting required except "cut draft and select tip-size" (usually slightly smaller).

MONEY-BACK GUARANTEE

If you are an experienced, qualified oil-burner man with a noisy or pulsating job that's got you down, take it out and replace it with a HART HCM-SF. A sixty day tryout is yours, and we'll back it with our hard-earned money, no questions asked, no alibis.

Wire, Phone or Write Me Today!

"HOME IS WHERE THE HART IS"

HART HEAT

Division of Avery Farm Machinery Co.

2006 S. Washington Peoria, Ill.

Phone 4-9271

LAU *offers You America's Most Outstanding*

Blower Assembly Unit

the new, improved series "A" unit

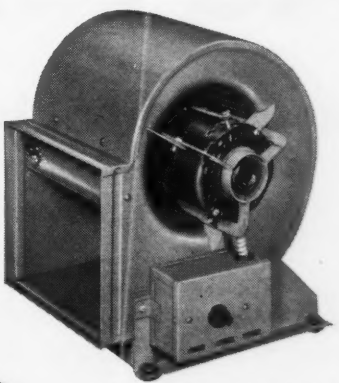
Now further improved . . . the last word in product development . . . LAU Series "A" Blower Assembly. It is an outstanding achievement in the blower field. Over-all size is smaller, more compact. Many features are revolutionary . . . exclusive with LAU . . . and fully protected. The entire unit is die formed to lend itself to mass production on precision-built equipment, with reflected low costs.

These Outstanding Features:

- **Newly developed 1-pc. Motor Mounting**
- **3-point Suspension Bearing Bracket**
- **Bearing Assembly with long-life lubrication**
- **Positive Alignment Wheel to Venturi**
- **Newly Improved LAU steel Pulley Wheel**
- **Strong, Compact, Versatile Housing Base**
- **Unit has efficient Center Suspension Wheel**
- **Improved Discharged Outlet Design**
- **Sturdy, Efficient Scroll Design**
- **Off-set in Scroll sides. Many other features**

The ALL NEW . . . A7DD Direct-Drive DOUBLE INLET BLOWER

Perfect unit for in-a-wall gas and oil furnaces . . . has fingertip adjustment for wide range 7-speed control. For furnaces to be rated at capacities from 44,000 to 76,000 b.t.u. per hour (bonnet) at 100° temperature rise—or capacities from 31,000 to 54,000 b.t.u. per hour (bonnet) at 70° temperature rise.



The A7DD is completely UL approved, covering the ENTIRE unit (also approvable in combination with furnace).

THE LAU BLOWER COMPANY • DAYTON 7, OHIO

2013 Home Avenue • Write for Full Information

World's Largest Manufacturers of Warm Air Furnace Blowers

fueloil & oilheat

EXTREMELY SIMPLE DESIGN makes this control a "pleasure to work with." Plastic covers on timer and relay keep out dirt, help prevent damage. Simplified flange, rubber grommet for service wiring, ample wiring room—all make mounting easy.

EASY TO INSTALL!

New G-E Stack Switch for any oil burner

Here's a control that's designed for *fast* installation, minimum service. It is the new G-E master control with helix ("stack switch") for regular stack mounting . . . One of the new simplified G-E oil burner controls. Here's why installation and servicemen like it the minute they see it...

NO LEVELING, NO ADJUSTMENTS, NO CALL-BACKS

Just install this control in the stack with the simplified mounting flange, set the knob on "cold" side, and forget it. *You don't have to level it.* It operates on any 50 to 100 degree temperature *change*—and *automatically adjusts itself* to any stack operating temperature up to 1000 degrees F. This means callbacks for field adjustments are not necessary.

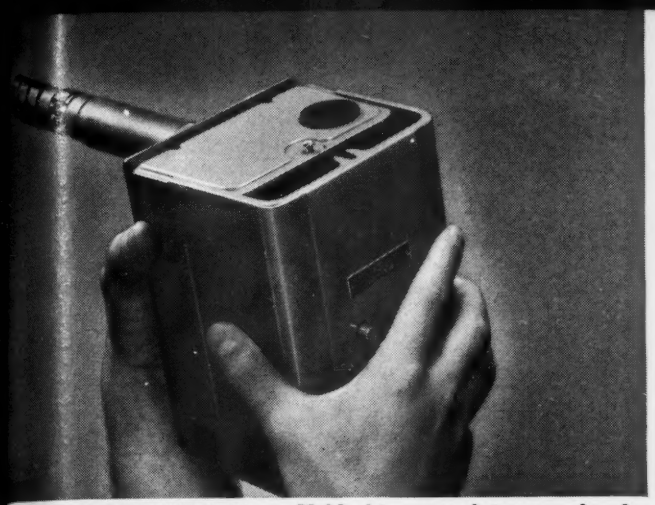
FAST ACTING, MAXIMUM SAFETY

This control is fast-acting on flame failure, because timing is preset at the factory and does not vary with, or depend on stack temperature. The control is set for much faster, closer control of lockout of shutdown timing than other controls—this gives maximum safety.

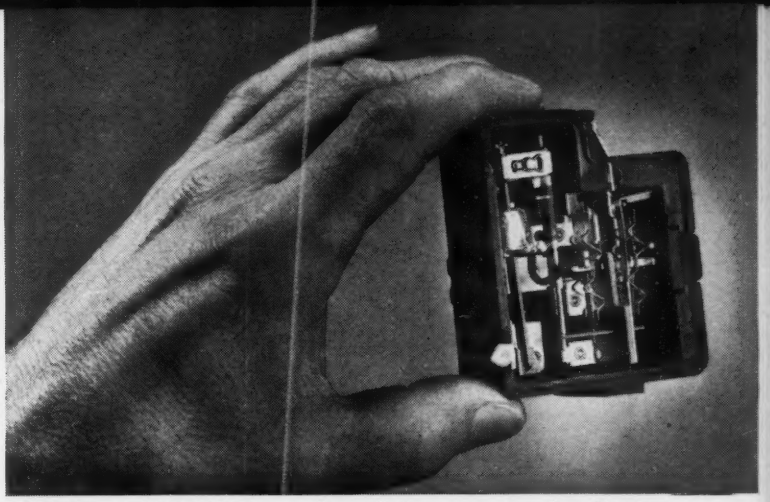
LIGHTWEIGHT BUT STRONG

This control will stand plenty of abuse, even though it's lighter in weight. The case and parts are of heavier, thicker materials than other controls—the reduced weight is achieved by reducing the number of parts and simplifying construction. Fewer parts mean fewer possible troubles—No special handling needed. For other details, look at the illustrations on these pages, then see your local G-E Apparatus Sales Office. Or write for Bulletin GED-1837, or Service Manual GEH-1907. Address Section 740-21, General Electric Company, Schenectady 5, New York.

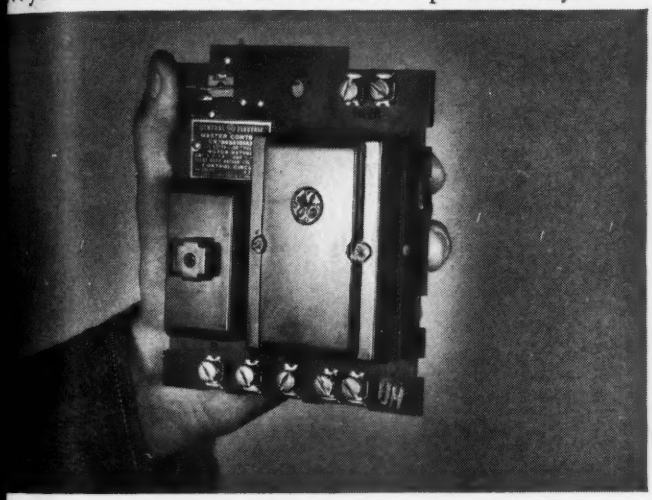
GENERAL ELECTRIC



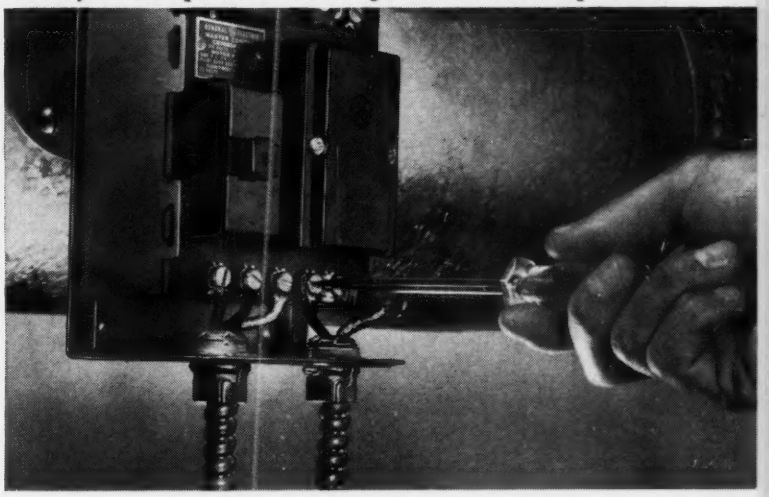
RUGGED CONSTRUCTION . . . Hold this control in your hands . . . you know it's built to last! Yet its cover pulls off easily.



FACTORY CALIBRATED . . . thermal timer *never* needs adjusting on the job. Gives positive lockout regardless of stack temperature.



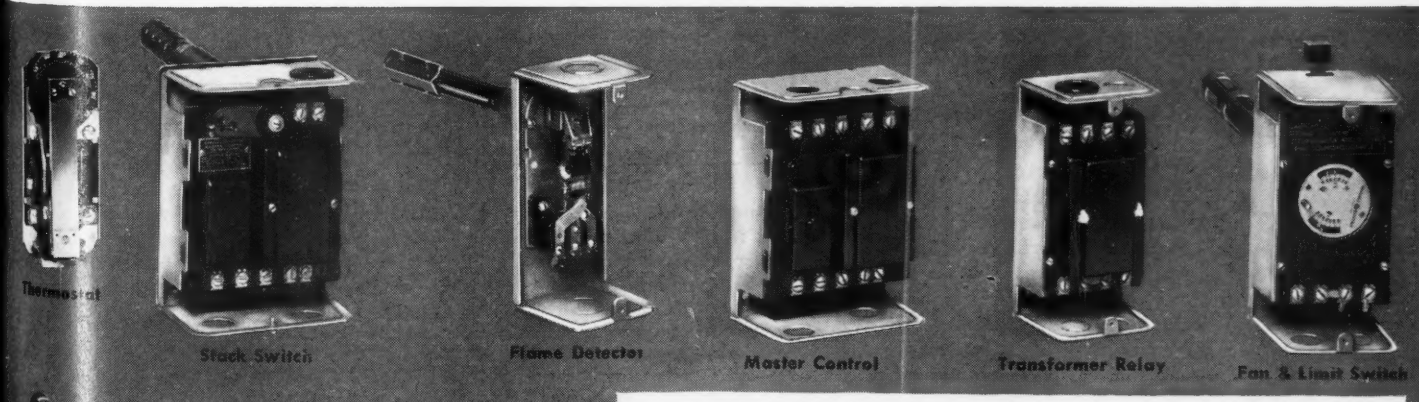
UNIT TYPE ASSEMBLY includes new combination transformer relay. Same core serves as transformer and relay armature.



PLENTY OF WIRING SPACE . . . No exposed parts to be damaged by slipping screwdriver. Terminals marked to prevent error.

EASY TO SERVICE!

cuts installation time, saves service calls!



OIL BURNER CONTROLS

The Appliance Control Department of General Electric is devoted exclusively to developing and producing a complete line of controls for appliance and oil-heating manufacturers.

In his talk "Developing Profits Through Training," L. T. White of Cities Service Oil Company pointed out that better training at all levels within a fueloil distributor's organization—servicemen, salesmen, and management men—produces better profits, higher salaries, and a sounder business organization.

White announced that Rutgers University is now offering off-campus courses in Petroleum Marketing in six Extension Division centers: Newark, New Brunswick, Camden, Jersey City, Paterson, and Dover. The courses will be conducted in any suitable meeting place, such as offices, libraries, and storerooms, and can be initiated by any group of fueloil men who appoint a spokesman to make arrangements with the University. The informal courses can be covered in one night or a series of nights on any combination of subjects the fueloil men choose: business mathematics, bookkeeping, credit and collections, raising capital, sales promotion, public and employee relations, and other subjects of interest. Interested fueloil-oilheating dealers should contact E. E. McMahon, Dean of Extension Division, Rutgers University.

Rutgers is also planning to offer a three-year course in Petroleum Marketing. Certificates will be given to those completing this course, and high-school graduation is not a requirement of enrollment.

In summarizing, Mr. White pointed out that the more a fueloil distributor spends on his own employees for training, the more profits he will be able to put in his own till.

A strip of Ocean Avenue, just outside the hotel, was again converted into a giant showroom as 17 brightly-painted fueloil trucks and trailers, the products of seven different manufacturers, were lined up for inspection.

James H. Wright, Jr., of Passaic is president of the association, Aaron Rich is executive director and Arthur Fox executive secretary.

Porter tells IOMA of Need for business Statesmanship

THE 29TH ANNUAL CONVENTION of the Independent Oil Men's Association of New England took place at the Hotel Statler, Boston on May 22. More than 1,000 registrations were recorded before the end of the meeting.

The program consisted of a morning forum on public relations and legislation, an afternoon forum on truck operation and oilburner service costs, a noon luncheon and the annual banquet in the evening.

The morning forums were conducted by Kenneth T. Howe, vice president of Jenney Manufacturing Company. The subjects covered were, "How Business Men Can Get Good Laws." Howard B. Driscoll spoke on this subject. Driscoll is executive secretary of the Massachusetts Petroleum Industries Committee.

The gist of his remarks were to tell the legislators what we want, and they

(*Continued on page* 106)

ALERT SERVICE MEN SAY "General" FUEL OIL FILTERS

✓ AND CHECK OFF THESE ADVANTAGES

☐ **QUICK PROFIT**
Generals are *easy to sell* because customers *need* GF's positive filtering protection.

☐ **EASY SERVICE**
Single-bolt assembly means instant, sure servicing — no time lost through troublesome "call-backs."

☐ **REPEAT SALES**
Seasonal cartridge changes aid in finding new filter prospects, assure lucrative, dependable earnings.

☐ **SUPER-FILTRATION**
Finest *all-wool* cartridge and GF's unique filter design mean the *safest* filtering known!

2A-700
for average needs

1A-25
for small stoves, heaters, etc.

Veteran fuel oil service men enthusiastically agree that GENERAL FUEL OIL FILTERS are the finest *all-wool-cartridge* filter money can buy! Easily replaceable felt cartridges not only reduce maintenance to a few simple steps but assure positive filtering which puts an end to unprofitable service "call-backs." One cartridge change covers the entire season. In addition, GF's quick, out-in-the-open installations save you time and money on every job.

ANOTHER MONEY-MAKER!
CLEAN RIGHT Soot Remover works safely, gently, quickly cleans any heating plant. Made for General Filters, Inc.

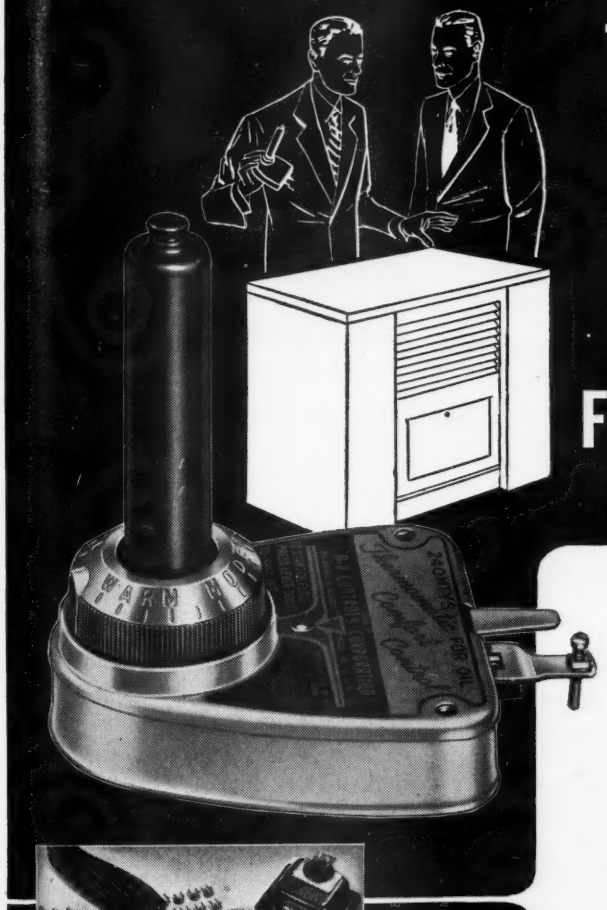
UL EXAMINATION SERVICE UNDERWRITERS' LABORATORIES, INC.

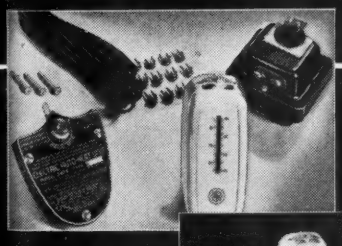
GENERAL FILTERS INCORPORATED — GENERAL FUEL OIL FILTERS — 43800 Grand River Ave. Novi, Mich.

CANADIAN FACTORY BRANCH: CANADIAN GENERAL FILTERS, LTD., 2679 DANFORTH AVENUE, TORONTO 13, ONTARIO

Every Oil Space Heater Customer is a Prospect for one of these High-Profit

ACCESSORIES FOR AUTOMATIC HEATING





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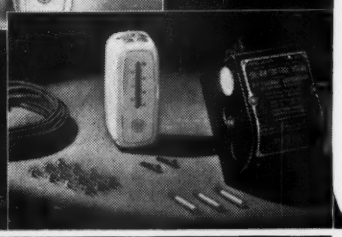


2

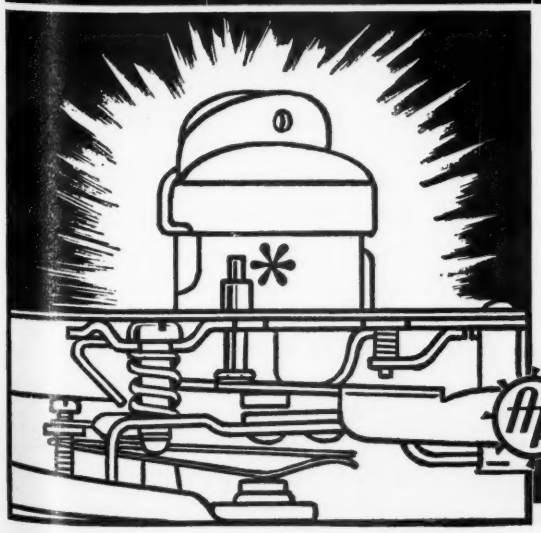
Fast-selling thermomatic comfort control

It's easy to sell automatic heating, once you've sold a space heater. The famous 240 MT-YS Thermomatic Comfort Control provides your customers with the healthful comfort of even, automatically controlled heat. Easily installed by owner, no electrical connections . . . fits right on oil control valve. Can be used with most space heaters equipped with an A-P manual control valve.

Sales proved Comfort Control Kits with room-thermostat

1. The extra comfort and convenience of electric thermostat heat regulation is a sales natural. Sell the K-240 ED A-P Comfort Control Kit . . . for oil heaters with one or two burners.

2. Cash-in on the customer with an oil heater using a circulating fan or draft blower. The K-240 ETS A-P Comfort Control Kit will give him electric thermostat heat and blower regulation.



*

Exclusive ACTUATING PIN on A-P Control Valves permits easy installation of automatic-heat accessories

Only A-P Control Valves feature the quick conversion ACTUATING PIN. It helps you to sell more Comfort Control Kits, when customers discover the simplified attaching procedure. Customers, themselves, can convert manual oil control valve to automatic operation with no complicated installation . . . no dismantling of valve.

A-P CONTROLS CORPORATION

DEPENDABLE *Controls*

For Air • Oil • Gases • Refrigeration

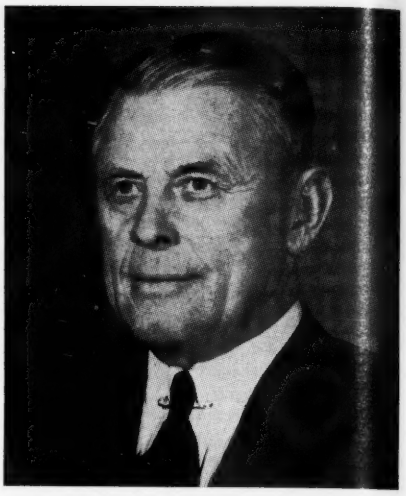
2458 N. 32nd St., Milwaukee 45, Wis.
In Canada: A-P Controls Corp., Ltd., Cooksville, Ontario

will give us their support, if we can convince them that our ideas are sound. He pointed out that the average Legislator is "fair and wants to vote soundly—let us help him."

The same forum included a discussion led by Virgil L. Rankin, director of Boston University Public Relations, on putting the "P.R." in Petroleum. This forum was also participated in by Edward P. Hacker, president of Ballard Oil & Equipment, Portland, Maine; Bill J. Bursaw, Bursaw Oil of Salem, Mass.; Arthur DeBlois, Sr., of DeBlois Oil Company, Pawtucket, R. I.; George LaPointe, Manchester, N. H.; Jacques Ellison, Jr., district representative of O.I.I.C.

This discussion was well attended and all agreed that public relations is the corner stone of modern business. A lively discussion followed the speakers and questions were many, showing a keen interest in this part of the program.

At the luncheon President Wesley E. Downing presided and introduced the head table guests.



Wesley E. Downing
President, IOMA

Next he introduced the luncheon speaker, Frank M. Porter, president of the American Petroleum Institute. Porter took for his subject, "Business Statesmanship, Oil Progress, and America." He spoke with forcefulness and conviction, saying the job of the American petroleum industry is to supply petroleum products in abundance to the most highly mechanized civilization ever known. He stated that 55% of all energy consumed comes from oil and natural gas. He spoke of the need for good understanding by the industry of how important it is that we keep the public enlightened as to what the industry is doing to help them, and said we must do everything possible to gain the public's good will.

Opposes Import Restrictions

Porter went on record as being opposed to legislation restricting oil imports, saying that the industry could be depended on to see to it that imports supplement but do not supplant American production.

He further said that all business men should give every possible technical and practical help to the government, and if they do not, they cannot complain if their government is costly and inefficient. Now businessmen have a chance to have the kind of government they want, to have things done in a businesslike way, he continued and they must not miss their chance.

He ended his speech by saying, "It is not a big federal government that makes local government weak, it is a weak local government that makes fed-

Why your profit depends on a clean burning flame
B&W BOOKLET SHOWS YOU
B&W FIREBOX HANDBOOK
Design and construction of modern fireboxes for domestic oil burners
BULLETIN R-20A
THE BABCOCK & WILCOX COMPANY

Today, more than ever, the oil burner dealer must make certain that his installations include a firebox which assures a *clean burning flame*. Odors, soot and smoke must be eliminated to meet the competition of other heating fuels—and the problem of frequent service calls must be solved.

To help the oil burner dealer lick these problems, Babcock & Wilcox, makers of B&W Insulating Firebrick, have prepared the comprehensive B&W Firebox Handbook which shows how you can profit by proper firebox design and construction.

This free booklet explains how figuring g.p.h. rates; altering firebox shape for long or short firing periods; building your firebox with B&W I.F.B. to reach high temperatures quickly after a cold start—can help you attain the all-important *clean burning flame*. It also contains a wealth of practical solutions to the many other problems facing oil burner dealers.

Write today for your free copy of the B&W Firebox Handbook. It is your guide to increased profit through customer satisfaction with better firebox performance.

R-482

Water-Tube Boilers, for Stationary Power Plants, for Marine Service . . . Water-Cooled Furnaces . . . Superheaters . . . Economizers . . . Air Heaters . . . Pulverized-Coal Equipment . . . Chain-Grate Stokers . . . Oil, Gas and Multifuel Burners . . . Seamless and Welded Tubes and Pipe . . . Refractories . . . Process Equipment.

BABCOCK & WILCOX
THE BABCOCK & WILCOX CO.
REFRACTORIES DIVISION
GENERAL OFFICES: 161 EAST 42nd ST., NEW YORK 17, N.Y.
WORKS: AUGUSTA, GA.

"OVER 2500 FURNACE INSTALLATIONS A YEAR!"

"We install over 2500 heating systems each year in new home construction. Our competition in this market is severe. To realize a profit we must get IN and OUT fast...and STAY OUT. Trouble-free equipment is a must — we use DELTA FURNACES."

Morton Partovich, Owner
LOUIS HEATING CO., DETROIT, MICHIGAN

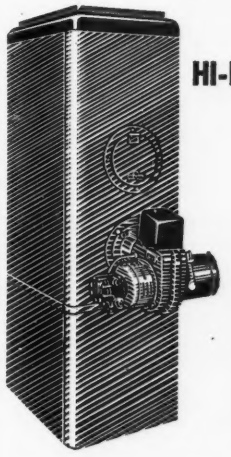
"OUR CUSTOMERS ENJOY A GOOD BUY"

"Most of our 200 furnace sales are for individual custom-made homes and replacements. We choose DELTA FURNACES for their quality, fine appearance and excellent performance record. Our customers enjoy a really good buy. DELTA'S lower cost helps us close more sales . . ."

Louis Digue, Owner
L. DIGUE & CO., DEARBORN, MICHIGAN

DEALERS EVERYWHERE AGREE...

You can beat all competition and make real money with

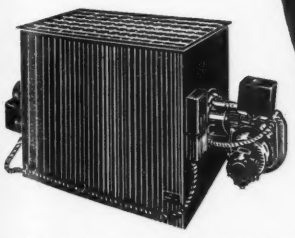


HI-BOY

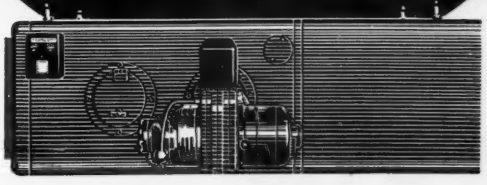
LO-BOY

Delta

AMERICA'S FASTEST GROWING FURNACE LINE



FLOOR LEVEL FURNACE



SUSPENDED HORIZONTAL

COUNTER-FLOW

ASK YOUR WHOLESALER FOR DELTA'S LOW-LOW PRICES
or write for literature and full specifications

AUTOMATIC D HEATING

Delta Heating Corp. TRENTON 8, NEW JERSEY

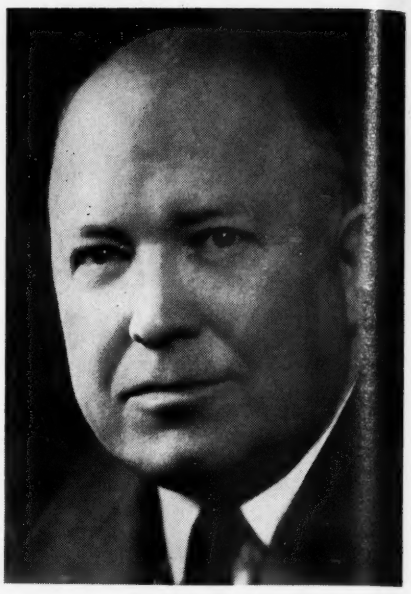
eral government big. It is not enough for business men to hope that this administration succeeds. They must do everything they can to make it succeed."

In the afternoon forum session, two subjects were covered, presided over by Carl W. Bergfors, operations and sales manager, Quincy Oil Company, of Quincy, Mass.

John Hassey, superintendent of operations, Cities Service Oil Co., spoke on "Truck Operations and Costs." Hassey told how labor costs now exceed truck operating costs by 60% and how careful management must be to buy the right size and kind of truck for their own needs, and how they must study delivery areas and analyze traffic conditions and time consumed in delivery of oil, for their cost picture.

He also pointed out that a good degree day delivery system should make it possible for a supplier to make at least 190 gallon average delivery and even up to 215 gallons.

Then followed a panel on "Annual Service Contracts." The speakers on this panel were Roland L. Wentworth, president, Petroleum Heat & Power Co.; A. Scott Butler, president, Scott-Williams, Inc., Quincy, Mass., and Al Breed, treasurer of C. A. Breed Co., of Newton.



Frank M. Porter
President, API

Wentworth spoke of anual service contracts from the standpoint of an all-inclusive program, including parts and tanks, and of keeping the customer happy and contented by including the cost of this contract in their yearly budget on fueloil.

Butler spoke from the position of a smaller operator handling about 1000 accounts on an annual basis and how he found it to be a very profitable business if carefully supervised.

Breed spoke of his company, which cares for 45,000 accounts on service and does not sell oil. He was opposed to an annual parts and service contract. His feeling is that nothing should be given away, "Treat the public fairly. They expect to pay for what they get. Don't spoil them."

The annual banquet took place in the main ballroom of the Statler, with more than 1,000 in attendance, according to Donal M. Sullivan, executive secretary of the Association.

Herbert Philbrick, author of "I led three Lives," was the speaker and held the audience spellbound with his weird and unbelievable experiences while serving with the FBI as an undercover man in Communist activities.

Nozzle TIPS

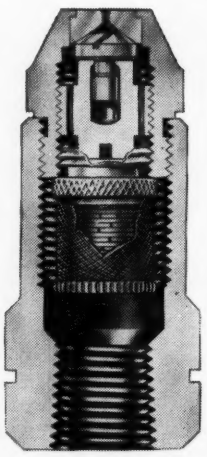
Know Your Atomizing Pressure

Be sure that pump pressure is 100 psi or higher. Lower pressure makes larger oil droplets and smoky fires. Higher pressure improves atomization.

IT PAYS TO USE

DELAVAN NOZZLES

. . . for better burner efficiency, for maximum oil economy. Every DELAVAN nozzle guaranteed accurate for rate of flow, spray angle and spray quality.



Delavan Nozzle with Hally Filter attached.

WRITE FOR CATALOG 148A

DELAVAN MANUFACTURING CO.
Grand Ave. & 4th St. • West Des Moines, Iowa

MEMBER OHI OIL HEAT INSTITUTE OF AMERICA

NiAGARA Announces

1. YEAR-ROUND AIR CONDITIONING

Provides Summer Air Conditioning . . . DOUBLES Profit Opportunities

Niagara refrigerated-air Home-Cooling Units are designed to use the blower, filter and ductwork of the forced-air furnaces beside which the units are installed. Semi-hermetically sealed compressor, cleanable tube condenser and liquid refrigerant (Freon) receiver, all serviceable on location. Operate with low voltage room control.

The cooling units are designed to match the famous Niagara Series 50 AC furnace with the exclusive Niagara cast-iron heat exchanger — installable also with your customers' present forced-air furnaces of ANY reliable make.
Cabinets of 2-ton and 3-ton capacity units are 22"x37"x47½" high.

2. NEW CONVERTIBLE *OIL-GAS* FURNACES
. . . New Economy for Suburban Homes

These furnaces are the ideal solution to the problem of many thousands of forward-looking home owners, builders and remodelers seeking the utmost flexibility in a practical, modern, automatic home-heating system for today . . . and *for years of tomorrows!*

Easily convertible with new Niagara Gas Conversion Burner.

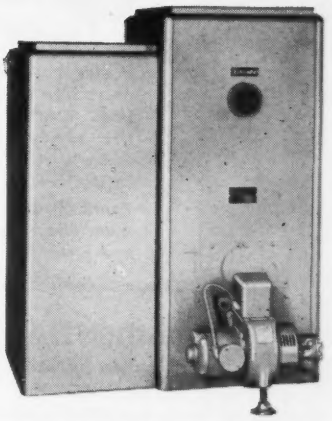
Exclusive Niagara rectangular heat exchanger permits exceptional compactness.

Available with or without burner hood which accommodates either gas or oil burner.

Also available in Down-Flow and conventional Hi-Boy models.

Sizes for large, medium and small homes.

WRITE for complete information.



Oil-fired AC unit. (Available also as gravity furnace — without blower-filter unit which is installable on either side.)

NIAGARA FURNACE DIVISION
The Forest City Foundries Co., 2500 West 27th Street, Cleveland 13, Ohio

HOME-HEATING EQUIPMENT MANUFACTURERS SINCE 1890

Six Washington Dealers average 177 Gals. per Stop

SIX FUELOIL DEALERS recently supplied information on their delivery practices and costs to the Institute of Greater Washington, D. C. From the data A. Graham Shields, managing director of the Institute, consolidated the figures, which showed that the average drop of these companies was 177 gals. Their trucks averaged 2.29 miles per stop, made 2.13 stops per hour, delivered 386 gals. per hour and averaged 75.6 gals. delivered per truck mile.

Analyzing delivery costs revealed that it costs the six companies almost 52¢ a mile to operate their trucks, adding up to $1.143 per stop. On a gallonage basis the average costs were: .004336 driver's labor cost; .0044 total truck expense and .00863 total delivery cost per gallon.

The six companies reported wage rates for drivers as $1.3975 average high per hour and $1.27 average low.

There was an average of 23 "out of oil" calls experienced by the companies during December and they found it necessary to place 9.3% of their customers on a C.O.D. basis. Further, the survey found that three out of four of all the customers of these companies had tanks equipped with VENT-ALARMS and 83% of them were on automatic deliveries. Four companies have all accounts on degree-day delivery systems, but all have an average of 13.5% of their customers who remain on a "will call" basis.

A separate portion of the survey covered oilburner service, hourly wage rates being reported as $1.92 average high, $1.62 average low. All companies furnish uniforms and laundry service for the men and three furnish the tools he needs. Transportation is provided by two of the companies; two others pay allowances for the serviceman's own car. One allowance is a flat payment of $50 a month, plus gas, oil and insurance, the other is based on 25¢ per hr. for all hours worked, included in the company's $1.90 hr. rate and emergency calls made from home.

During December the servicemen employed by these companies averaged 6.46 calls per man per day and on 3.2% of their calls found no one home. Only one of the companies has its servicemen carry emergency oil for "out of oil calls." Three of the companies use 2 men on summer clean-ups, two use 1 or 2 and another 1 man.

❖

Hess heads reorganized Dillon Boiler Works

A. E. (JACK) HESS, former managing director, Oil-Heat Institute of America, now is president of the reorganized D. M. Dillon Steam Boiler Works, Inc., Fitchburg, Mass. The company has been producing high and low pressure steam boilers and boiler vessels continuously since 1870.

A. E. Hess

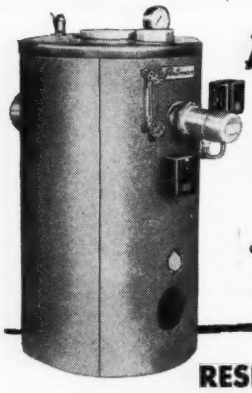
Production of all models will be continued at Fitchburg, together with stacks, breechings and custom plate work. Some new low pressure models are to be added for commercial, industrial and residential applications.

ENGINEERED STEEL BOILERS by Portmar

...are rated for their dependability and "know-how"

PORTMAR engineering "know-how" consists of one part ability, one part training and one part experience. Architects and contractors recommend and install thousands of Portmar Boilers yearly. They know that the correct mixture of "know-how", workmanship and materials go into the construction of every boiler.

New Type "C" Boiler for the commercial field—being prepared for delivery to a public institution. Available in *split sectional* and one piece construction for apartment house and all large structure installations. 12 sizes, from 3,650 to 21,250 sq. ft., steam. Larger boilers made to order.



Budget Priced for Faster Sales!

Portmar offers a complete line of *oil or gas fired* heating boilers for *steam and hot water systems* — in all capacities.

• *Contact your jobber or write direct for literature and prices.*

RESIDENTIAL
"Vertical Tube Series"
For the cottage and small building in both flush and extended eye-appealing jacket styles. 6 sizes — Steam: 320 to 1,100 sq. ft.

WINDSOR
"Horizontal Tube Series"
For the small building, larger residences, and medium sized buildings with attractively styled extended jacket. 12 sizes — Steam: 320 to 3,000 sq. ft.

"Engineered Quality Steel Boilers for Luxurious Heating"

Portmar Boiler Company Inc.

193 Seventh Street • Brooklyn 15, N. Y.

RESIDENTIAL, COMMERCIAL, INDUSTRIAL WATER HEATERS AND HEATING BOILERS
PORTMAR STEEL BOILERS • ROTARY FLAME BOILERS

NEW THRUSH TANKS

Reduce Draining Time

DRAIN COMPLETELY IN A FEW MINUTES

THE VACUUM BREAKER NOW IN ALL THRUSH PRESSURE TANKS

NO EXTRA COST

THE FIRST REAL IMPROVEMENT IN TANK DESIGN IN MANY YEARS! THRUSH ENGINEERING LEADS AGAIN!

HERE'S AN ADDED convenience feature found only in Thrush Pressure Tanks! It saves your time! . . . saves labor! Reduces service bills! Pleases customers because you can get the system back in operation without delay. No need to drain the whole system. Just close the stop valve, open the drain and unscrew the Vacuum Breaker to allow air to enter the tank. A thirty gallon tank will drain in ten minutes. You get more for your money . . . build greater customer satisfaction, too . . . when you install genuine Thrush equipment. Ask your wholesaler about it or write Dept. C-6.

TO BE SURE IT'S A GENUINE THRUSH PRESSURE TANK . . .
LOOK FOR THE VACUUM BREAKER BEFORE YOU BUY!

H. A. THRUSH & COMPANY

PERU, INDIANA

fueloil & oilheat

Oil outsold Gasheating in Milwaukee last Year

THERE WERE 9,510 oilburners sold last year for domestic heating in Milwaukee, compared with 3,112 gasburners, acording to the *Milwaukee Journal's* 1953 Consumer Analysis Findings. This 3-to-1 ratio represented a reversal of the trend during the previous two years when gasheating was increasing from 12,192 in 1949 to 56,358 at the end of 1951. Oilheating, during the same period jumped from 64,010 to 75,589.

	Oil		Gas		Coal	
	%	No.	%	No.	%	No.
1/1/53	31.3	85,139	21.9	59,570	47.2	128,660
1/1/52	28.3	75,589	21.1	56,358	51.0	136,221
1/1/51	27.7	72,049	13.2	34,334	59.9	155,803
1/1/50	25.2	64,010	4.8	12,192	70.7	179,585

At the end of last year the totals showed that there were 85,139 oilheating units in use in Milwaukee, 31.3% of all homes; 59,570 gasheating units, 21.9% of the total and 128,660 coal-fired systems, 47.3%. Coal during the past four years declined from a total of 179,585 at the end of 1949, when it represented 70.7% of the market.

The return of oil to the dominant position in domestic heating in the Milwaukee area typifies a normal cycle in many markets where gas for space heating has been promoted. Initially, sparked by a concentrated and continuing selling effort, the local utility dominates the home heating field for a few years. But in that comparatively short time it reaches the capacity of its commitments to the pipeline company and has added all the home heating customers it is possible to put on its lines. Then follows, as it did in Milwaukee, the announcement that additional customers for gas cannot be accepted, either in existing or new homes.

Reproduced above are the figures from the survey of the number of home heating customers for oil, gas and coal for the past four years.

Do Your PRESENT PRECAST CHAMBERS Give You ALL these Advantages?

1. Low initial cost.
2. Low installation cost — only 5 pieces to assemble.
3. K-factor equal to insulating brick.
4. Excellent performance with either high or low pressure burners.
5. Scientifically packed to prevent breakage.

. . . if the answer is NO -- contact us NOW!

KOLB REFRACTORIES COMPANY
Meadow & Jackson Sts.
Philadelphia, Penna.

KolbKast Insulated Chambers

Fueloil Terminal to be built in Massena, N. Y.

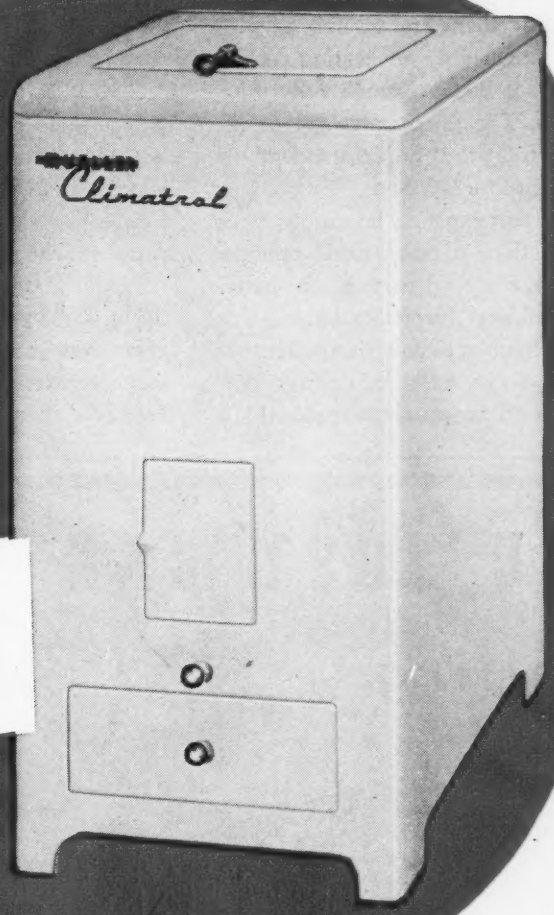
MASSENA OIL TERMINAL, INC., Massena, N. Y., has been formed to construct a fueloil terminal on the St. Lawrence River a few miles northwest of Massena. Storage for 180,000 barrels of No. 2 fueloil will be provided. The terminal is being built to supply the Aluminum Company of America's plant in Massena and local fueloil dealers.

Bert J. Copeland heads the new company. Copeland also is president of Copeland Oil Co. and Copeland Terminals, Inc., Plattsburg. Copeland Oil has distributed Sunoco products since 1939 in Clinton and Essex counties.

Housing Agency publishes Findings on house Insulation

HOUSING RESEARCH NO. 5, quarterly publication of the Housing and Home Finance Agency, Washington 25, D. C., contains findings of its research

Now a Mueller Climatrol Gas-Fired Incinerator



...for new profits the year around

You sell a famous, nationally-advertised brand name!

You offer the plus value of Mueller Climatrol design advantages!

Sized right—has 1.6 bushel capacity to handle big family garbage and trash. **A.G.A. approved** — for continuous operation.

Handsomely designed — available in standard grey or deluxe white models.

Easy to install—shipped assembled. Simply install flue and run gas line to unit.

Trouble-free — once installed, unit requires no servicing. Light and forget — no moving parts.

Burns anything — except metal or glass — including rinds, peach pits, old shoes, paper, vacuum-cleaner dirt, corn cobs and magazines.

MORE profits from Mueller Climatrol are coming your way — all year 'round. For now Mueller gives you something new to sell — the Mueller Climatrol Incinerator. It's handsomely styled and attractively priced, to give you the jump on competition in the big, year around home-incinerator market. And it sells in the months when your regular heating business is apt to be slow.

But that's not all — you profit another way, also: Every sale of a Mueller Climatrol Incinerator is a "door-opener" that helps you uncover new prospects for Mueller Climatrol heating and air-conditioning equipment.

Yes, sir, the Mueller Climatrol Incinerator offers a double-barreled, volume-building opportunity you can't afford to pass up. Get the whole story now, by mailing the coupon below.

D—134-B

96th Anniversary

Mueller Climatrol

For money-making details, tear out coupon and mail today!

L. J. MUELLER FURNACE COMPANY
2025F W. Oklahoma Ave., Milwaukee 15, Wisconsin

The Mueller Climatrol Incinerator sounds like more money in the bank for me. Send more information.

Name.....

Company.....

Company Address.....

City.....State.....

program on house insulation and declares that there are possible savings of more than 40% of heating fuel in the average house through fully insulating it. The publication can be secured from the Superintendent of Documents for 40 cents.

The report explains the various types of insulation, discusses their application in the several parts of the house and contains recommendations for various combinations of insulative materials in floors, walls and ceilings. Diagrammatic drawings show applications.

Oilheating Supplement in Milwaukee Sentinel

A SPECIAL 20-page supplementary section devoted entirely to automatic oilheating appeared as part of the *Milwaukee Sentinel* on Sunday, April 19. Containing 14 feature articles that presented the story of oilheating to the public, it carried a great deal of advertising, cooperatively sponsored by manufacturers and dealers. Over a dozen manufacturers of oilburners and oil-fired equipment placed advertisements.

In addition, distributors of fueloil and equipment, major oil companies, sheet metal shops, oilheating associations and burner dealers took space in the section.

All the modern features and sales points of liquid fuel equipment were covered in language that the consumer could understand. Some of these topics were the degree-day system, thermostat location and settings, the place of trade associations in the industry, volume of installations, the value of yearly checkup services, comparative costs of fuels, do's and don'ts on the operation of oilburners, airconditioning, efficiency of oilheatnig equipment, and other interesting features.

The supplement, with its 14 pages of advertisements, provided *Milwaukee Sentinel* readers with an "oilheating conscious" Sunday. Many requests for additional information were received by the dealers whose ads appeared in the section, and the section was responsible for furnishing a considerable number of leads that substantially increased sales during the days that followed its appearance.

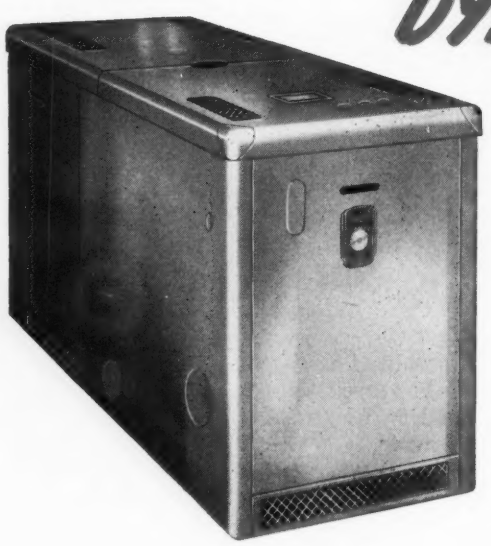
❖

Dan A. Lynch has been appointed sales manager, Windmaster Corp., Columbus, Ohio. Lynch comes to Windmaster directly from serving as a manufacturers' representative in Ohio representing Conco. Previously, Lynch has served as manager of Lennox Furnace Co.'s service and educational departments where he conducted dealer-factory schools. He also served as an instructor of central heating for L.P. gas short courses at both Southern Technical Institute and Purdue University.

M. Nielsen, who was elected a vice-president, The Babcock & Wilcox Co., New York 17, N. Y., recently, has been placed in full charge of the manufacturing department of the company's boiler division. His new assignment will place him in charge of manufacturing work at the firm's seven Boiler Division plants.

YOU JUST CAN'T MISS

selling The Bethlehem DYNATHERM



- This automatic package unit creates satisfied customers.
- Gives them more for their money in fuel economy, in compactness, comfort and convenience!
- The Bethlehem DYNATHERM offers all the features that make your sale easier — The Whirling Flame . . . Unit Engineering . . . Thermos Bottle Insulation . . . Beautiful Cabinet.
- The Bethlehem DYNATHERM comes completely equipped with everything, ready for installation except the piping.

Keep a Step Ahead of Competition by Selling Something Really Different! The Bethlehem DYNATHERM!

A few exclusive Bethlehem Dynatherm territory Franchises are still available. Wire or write immediately for full information.

BETHLEHEM FOUNDRY & MACHINE COMPANY
BETHLEHEM, PENNSYLVANIA

Engineered for PLUS PERFORMANCE

Delco Motors

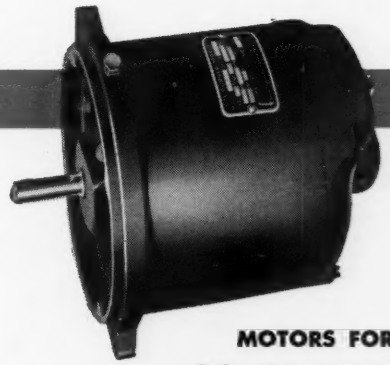
For continuous, trouble-free performance, more and more manufacturers of heating and ventilating equipment specify Delco motors. And their actual performance records prove the soundness of their judgment.

Unsurpassed performance is engineered into every Delco motor. Precise dynamic balance . . . careful selection of materials . . . and special features such as uniflow pressure-cast rotor conductors, steel-backed tin babbitt sleeve bearings, cored oil wells, and varnish-dipped and baked windings combine with many other advancements to make a Delco motor live up to the slogan "The Best Running Mate Your Product Can Have."

You will find the right motor for your needs, in sizes from fractional to 100 hp, in the great Delco line. For information, address Delco Products, Dayton, Ohio, or our nearest sales office.

MOTORS FOR BLOWERS

Delco resilient-mounted motors, split-phase and capacitor-start types, single- and two-speed designs, 1/6- to 3/4-horsepower ratings.



MOTORS FOR OIL BURNERS

Delco flange-mounted motors, split-phase, 1/6- to 1/4-horsepower ratings.

THE BEST RUNNING MATE YOUR PRODUCT CAN HAVE

DELCO DAYTON OHIO

DELCO PRODUCTS

Division of General Motors Corporation • Dayton, Ohio

SALES OFFICES:

ATLANTA • CHICAGO • CINCINNATI • CLEVELAND • DALLAS
DETROIT • HARTFORD • PHILADELPHIA • ST. LOUIS • SAN FRANCISCO

Everyday Snags

Dog House air Filters

Burners completely enclosed in extensions or "dog houses" of oil-designed furnaces and boilers have a greater tendency to collect dust and fuzz than exposed burners. The owners don't wipe them or dust them off for one thing. For another, the air openings into the furnace and boiler jackets often are close to the floor.

Loads of dust and fuzz on a burner do not help it. The air-intake openings of the burner become clogged, decreasing the flow of air to the flame. The blower may become so clogged with dirt and dust within five years that replacement is in order—unless you want to spend real time cleaning the blower blades painstakingly, and will risk winding up with a blower that's out of balance when you get through.

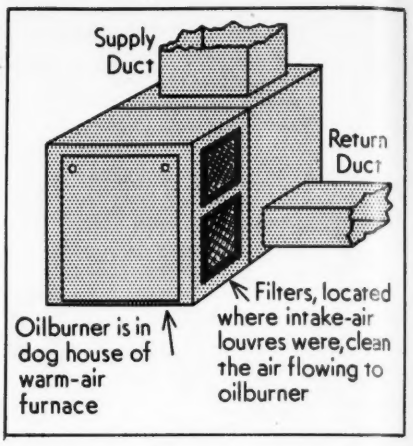
The air-handling parts in the gun tubes of certain burners have small air-flow ports that plug up often.

Occupying his new house for three years, a burner dealer learned he had an aggravated case in his own home of all these dust and dirt problems. The burner in the dog house of his warm-air furnace gave trouble four or five times a year because of dirt and dust. Every time he removed the panel from the furnace jacket to take a look at the burner, it was a dusty mess.

He's out of the trouble now, thanks to his inspiration which the drawing shows. Instead of entering the burner enclosure through louvres located close to the floor, the air for combustion now enters through two 20" x 20" x 2" standard air filters, which the dealer neatly fitted to the side of his furnace.

These are the same as the filters regularly used in the furnace for the air circulated through the house, and this simplifies replacing them twice a year. Naturally, he eliminated all cracks and crevices through which basement air might sneak into his burner blower without passing through the two air filters.

"Burner stays clean as new now," he concludes, "Blower and gun tube parts will be as dust-free in ten years as they are today. Idea of fitting filters to furnace casing is my inspiration, but filtering the air to a burner blower is not my invention. At an oilheating show, I'd seen a big air cleaner attached to a pressure burner to filter the air flowing to the blower.


Supply Duct
Return Duct
Filters, located where intake-air louvres were, clean the air flowing to oilburner
Oilburner is in dog house of warm-air furnace

Burner Thermal efficiency

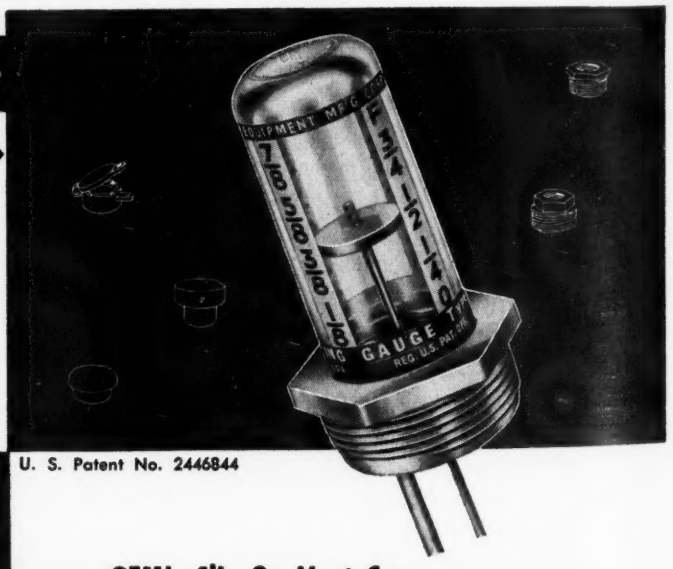
To heating engineers, the word "efficiency" has a well-defined meaning when used with percentages such as 50% and 70%. Utilization of fueloil at 50% efficiency means that 50% of

for *First* quality – *Low* cost

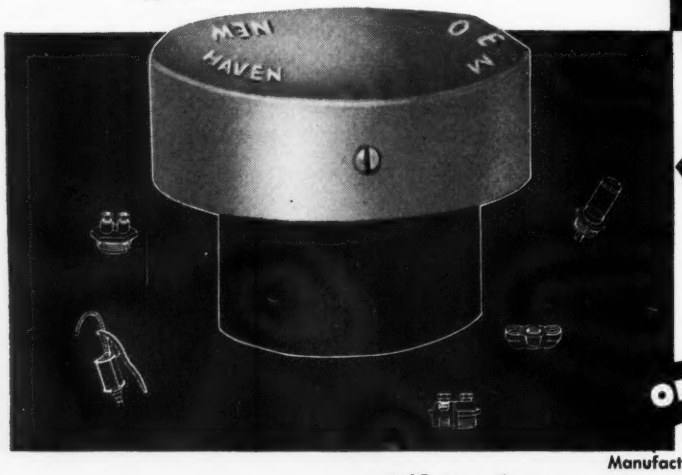
OEM's Leakproof King Gauge*...

Ideal for basement tanks. Precision gauge of finest design, tested, inspected and approved by Underwriters Laboratories for your protection.

- attractive Lucite top — easy to read
- 1½" or 2" gauge bushings are interchangeable — less stocking
- no extra charge for 2" bushings
- colorfully packaged for customer appeal



U. S. Patent No. 2446844



OEM's Slip-On Vent Cap...

Eliminates threading of vent pipe. Saves time and labor, fits flush against the wall.

- a strong, solid aluminum casting
- fire screen included at no extra cost
- complete range of sizes: ¾", 1", 1¼", 1½"

Write for 1953 catalog on complete line

Manufactured by

Oil Equipment Manufacturing Corp.

169 Derby Ave. New Haven, Conn.

more payloads in every week

YOU CAN DO IT WITH THESE EFFICIENT MOTORPUMPS FOR FUEL OIL HANDLING

These are facts based on records maintained by fuel oil dealers across the country: You can pump fuel oil into tanks and trucks with Ingersoll-Rand Motorpumps at a faster rate . . . and do it at a direct saving. This means you put your trucks on the road faster—delivering more payloads every week. Further, save on first cost and on power consumption.

Ingersoll-Rand offers you IMMEDIATE DELIVERY on a range of types and sizes of Motorpumps. Warehouses and service engineers are located in all principal cities. Simply contact your nearest Ingersoll-Rand representative and make more with the Motorpump. Meantime, write for the descriptive literature. INGERSOLL-RAND COMPANY, 11 Broadway, New York 4, New York.

MOTORPUMP

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available in sizes from ¼ to 50 hp.

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the heat in the oil is wasted while 50% is put to use. Utilization of fueloil at 70% efficiency means 30% of the Btu's in the oil is wasted while 70% is put to use.

Well informed on this, of course, the technicians of a certain organization in the field of heating were puzzled recently by the use of the term "burner thermal efficiency" in a letter written them by a South Carolina heating and airconditioning company. Here's the letter, edited but slightly, and with "X" and "Y" replacing the names of two well-known oilburners, which were in the original letter:

"We desire information regarding the efficiency of different oilburners on the following basis.

"We installed an X oilburner in a domestic heating plant. A representative from a certain supply company states that the new Y oilburner operates at a thermal efficiency of approximately 70% as based on the efficiency of the X oilburner of 50%.

"He states he received this information from your organization, and we are asking that you please send us as much information as you have regarding the efficiency of these two oilburners. We realize that it is very difficult for you to express your opinion of various makes of oilburners, however, we are asking that you send us information as well as you can regarding these two burners."

Because they are in no position to compare the relative inherent efficiencies of different makes of burners, to state it mildly, the technicians who received this letter passed it on to FUELOIL & OIL HEAT for answering comments. The man who wrote the letter promptly received a preview of this "Everyday Snags" item.

The mention of "70% thermal efficiency" for one make of burner is as puzzling as the mention of "50% operating efficiency" for the other burner, although seemingly both efficiencies mentioned are intended to be on an identical basis.

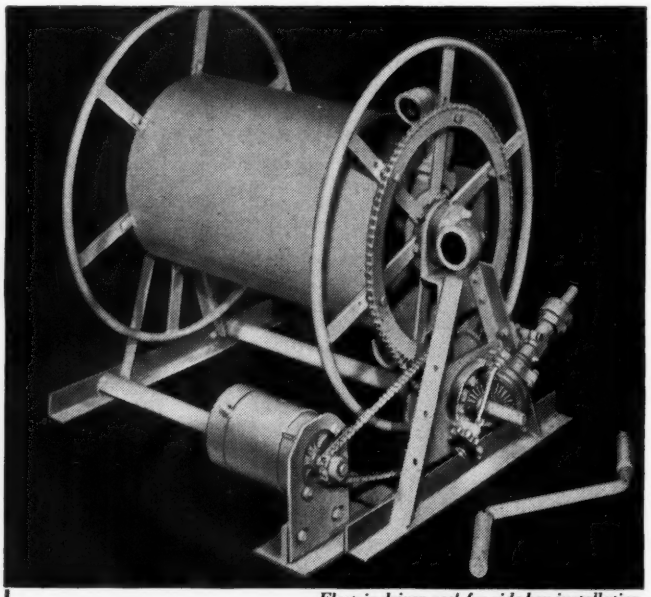
Numerical Meaning

Considering only an oilburner per se, with no complication of the heat-absorbing ability of a warm-air furnace or a steam or hot-water boiler, what is the numerical meaning of the 50% and 70%?

Does 50% efficiency mean that the combustion-ability of the burner wastes half the Btu's in the oil by, in effect, failing to ignite and burn completely half the fueloil involved? The complete combustion of one gallon of domestic fueloil releases 140,000 Btu's, in round numbers. On the above basis, does a 50% efficient burner release 70,000 Btu's in its flame, per gallon of oil burned? Does a 70% efficient burner release in its flame 98,000 Btu's per gallon of oil?

That can't be. It is too absurd. The man who is well-informed could not conceivably admit to his burner's being so inefficient on this basis as to ring up only 70% efficiency. On the basis explained above, the worst burners must be at least 95% efficient! Therefore the man who is well-informed (supposing the man who first mentioned 50% and 70% efficiencies is well informed) must have had some other basis of efficiency in mind.

New low-priced hose reel operates *over* 1,500,000 revolutions *without losing a drop*



Electric driven reel for side box installation

Self-tightening seal enables it to stand up under toughest, heaviest work loads

The finest hose reel ever built for fuel oil, gasoline, compressed gases and chemicals. Will never wear out. Exhaustively tested.

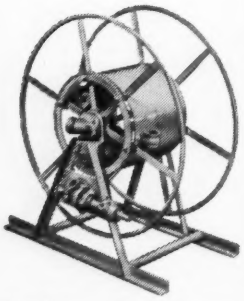
No leaking, no sweating after a million revolutions at pressure from zero to 100 lb. per sq. in.

A new, self-tightening seal in swing joint is the secret. This seal is easily, quickly replaced without breaking lines.

Features include light weight (85 lb. with 100 ft. of 1¼" hose); swing joint with clear, uninterrupted passages; every part steel, malleable iron or bronze—no cast iron; rigid base, welded throughout; six ball bearings on every reel; all working parts accessible; reel can be quickly unbolted.

This hose reel is made in all sizes from 1" to 3", for bucket or underslung box installation. Available with standard or explosion-proof electric motors, any voltage; air or hydraulic drives. We can equip them with automatic stop, level winder, friction, jaw, or electric clutches if desired.

Delivery usually within one week. Write for prices and details.



Hand-wound reel for rear box installation

PHILADELPHIA VALVE COMPANY

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Pacific Coast Distributors:

Oil Marketing Equipment Co., 325 Fremont Street, San Francisco 5, Calif.
Howard Supply Co., 5125 Santa Fe Avenue, Los Angeles 11, Calif.

3 out of 4 HEIL TRUCK TANK SALES are to REPEAT BUYERS!

REPEAT ORDERS HAVE PROVED HEIL TANKS

THERE'S no better endorsement of a product than repeat orders. When 75% of Heil Truck Tank Sales are repeats, it *proves* the importance of Heil design to profit-minded buyers.

Heil *knows* the liquid transportation business . . . has met *and anticipated* requirements for 52 years, and has pioneered more important developments than anyone in the industry. As Heil engineers see it, their job is to make *your* job more profitable, with a tank that's a money-maker year after year after year. Heil Truck Tanks are usually the last ones in the fleet to be replaced . . . and even then they bring high resale prices . . . proof of the industry-wide demand for the outstanding design and construction of these Heil units.

T-2

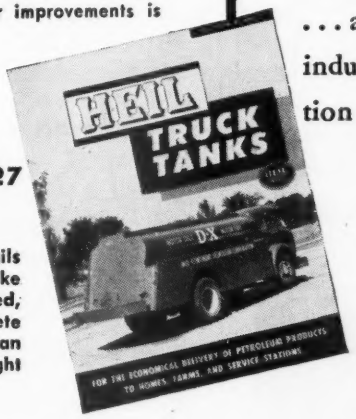
A few of the owner-satisfying HEIL ADVANTAGES

LIGHTWEIGHT—One-piece, integrally-welded design which eliminates tie-bands, bolts and heavy sub-frames. Weight saving features increase pay load potential.

GREATER STRENGTH—The tank shell is formed by sheets running lengthwise, instead of welding together individual shells for each compartment. This "smooth skin" wrapper and the supporting bulkheads provide greater beam strength, decrease the possibility of leaks.

LOW MAINTENANCE—One-piece unit construction frees Heil tanks from maintenance needs of conventional designs.

HEIL DESIGN—Heil tank design and construction are recognized as the most outstanding contributions to the industry. An original Heil idea back in 1936 led to the whole concept of modern, lightweight *trailerized* tanks, one of many Heil "firsts". Constant research for greater improvements is standard practice.



WRITE FOR BULLETIN TT-52227 *Today*

It contains full details of the features that make Heil Truck Tanks preferred, and describes the complete line from which you can choose the exactly right tank for your needs.

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TRAILERIZED TRANSPORT TANKS • TRUCK TANKS • TRAINS • CHEMICAL TANKS

Perhaps he had in mind a basis of some reasonable, usually-encountered stack temperature reading. He expects, let us say, 650° from a typical, acceptably-efficient furnace or boiler. Then he may be stating that at 650° stack temperature, his burner operates at 70% efficiency; whereas the other burner operates at 50% efficiency with the stack temperature 650°. In other words, in the same furnace or boiler his burner puts to use 70% of the heat in the oil, whereas the other burner puts to use 50% of the heat in the oil.

He is stating that on a given installation his burner gives much higher CO_2 together with clean combustion, than the other burner can give. Again, however, this basis does not ring true. If the man had a certain stack temperature reading in mind when he mentioned "thermal efficiencies" and "operating efficiencies" of 50% and 70%, he would have said so.

A man who really is a burner expert knows that the stack loss or flue gas loss is the all-important loss on an installation having an oilfired furnace or boiler. He konws also that this loss depends on two factors: (1) the stack temperature reading, and (2) the CO_2 reading. He knows this is based on complete combustion, a low reading from a smoke-checking instrument.

The equipment dealer who wrote the letter which appeared in the first part of this item seemingly feels that his installation was insulted, termed about 50% efficient. He should arrange for combustion tests of the job to ascertain its efficiency. As promptly as possible, the job should receive the benefits of instrument check-ups for its draft readings, CO_2 reading, stack temperature reading, and smoke reading!

❖

B. L. "Barney" Majewski has been named to head a newly formed marketing company, set up by Signal Oil and Gas Co., to operate and be responsible for marketing the products of a natural gasoline plant which both Signal and the Amerada Petroleum Corp. have jointly contracted to construct.

The plant, which is in the vicinity of Beaver Lodge and Tioga, North Dakota (Williston Basin), is to process the gas produced by Amerada with the crude oil in that area. Under the terms of the agreement, Signal will operate the plant and have the responsibility of marketing the products—natural gasoline and liquefied petroleum products, extracted from gas—returning the residual dry gas to Amerada suitable for domestic and industrial use.

Majewski, a nationally known independent oil man, is president, The Great American Oil Co., Chicago, Ill. This company will have a substantial interest in the new marketing venture.

James L. Meagher has been named general manager, Anchor Div., Stratton and Terstegge, New Albany, Ind., assuming all responsibilities for management as well as sales for the Anchor line of heating equipment. Meagher had been serving as sales manager for the company. It was also announced that *L. J. Frankenberger* has been promoted to production manager for the Anchor Division. Frankenberger formerly was manager of the Hart Products Division.

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OIL BURNER NOZZLES
FACTORY TESTED TO INSURE PERFECT OPERATION!
RIGHT FOR SPRAY ANGLE, ATOMIZATION, AND RATED CAPACITY!
LARGE CAPACITY MONEL STRAINER KEEPS ORIFICE AND SLOTS FROM PLUGGING!
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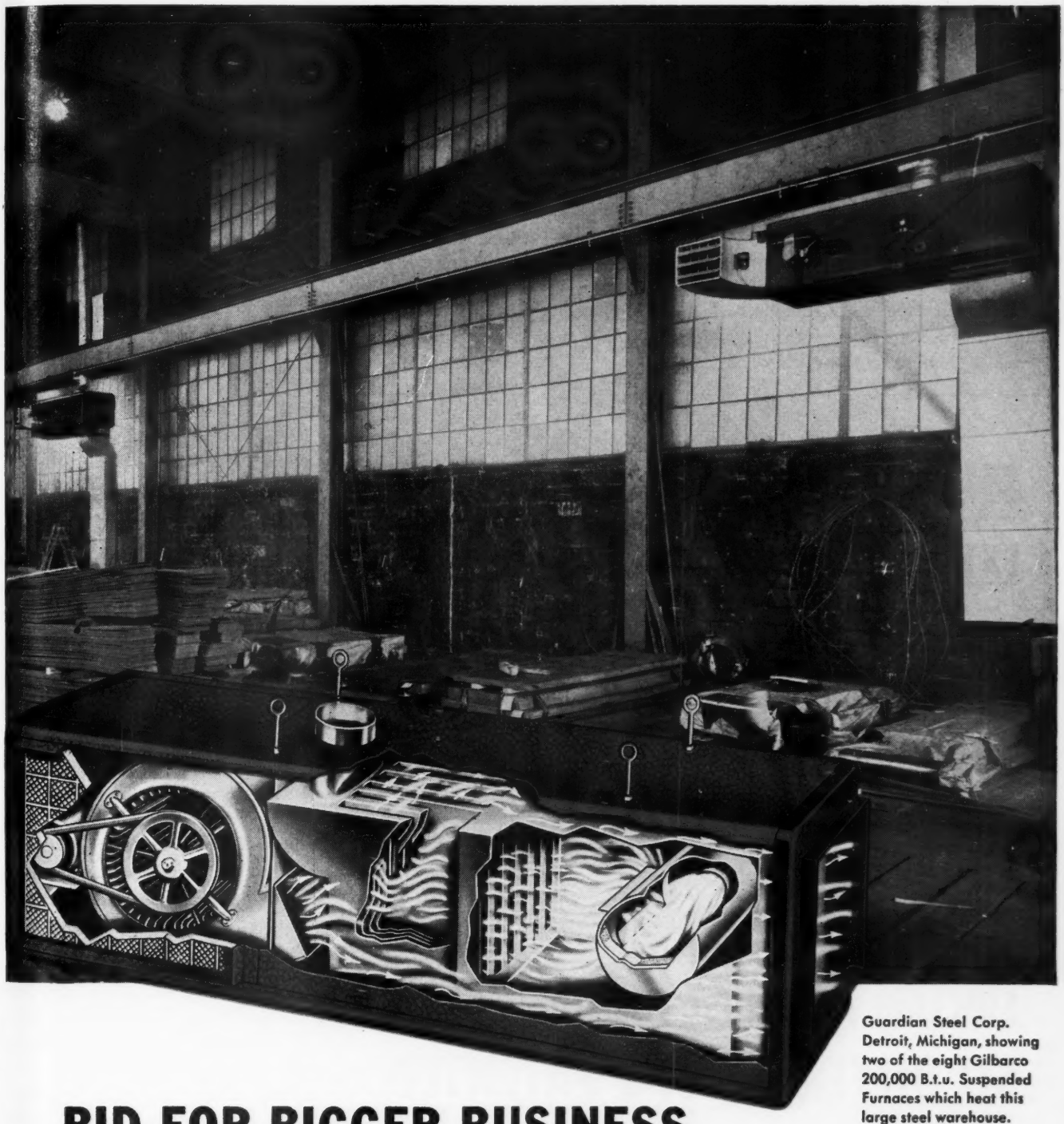

Guardian Steel Corp. Detroit, Michigan, showing two of the eight Gilbarco 200,000 B.t.u. Suspended Furnaces which heat this large steel warehouse.

BID FOR BIGGER BUSINESS WITH GILBARCO SUSPENDED FURNACES

Sell Gilbarco Suspended Furnaces and you are ready to quote on virtually *every* job where automatic oil heat is required. And *get the business*. For you can install these new units faster, easier, and at *lower cost* than any other kind of oil-fired automatic heating equipment.

Bid for more business, at higher profit, with Gilbarco Suspended Furnaces.

Gilbarco

Gilbert & Barker Mfg. Co.
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GILBARCO . . . THE OIL BURNER WITH THE PATENTED ECONOMY CLUTCH

Industry Groups

Activities of local and national industry associations are reported monthly in this department. Secretaries are invited to send reports of their Group's activities to reach the editor by the 18th.

NYOHA announces Date and Place for its Outing

JUNE 25 is the date and the Engineers' Club, Roslyn, Long Island is the place for the 1953 annual outing of the New York Oil Heating Association, Inc., New York 18, N. Y. The entire facilities of the remodeled club have been secured for the day and tickets have been arranged for golfers and non-golfers.

In addition to the golf tournament, the traditional manufacturers-dealers softball game is scheduled for the afternoon. Other events, for all of which prizes are to be awarded, include tug-of-war, horseshoe pitch, nail drive and egg toss. A steak dinner will top off the day.

THE DIFFERENCE MAKES
EXTRA SALES FOR SINCLAIR JOBBERS

SINCLAIR ANTI-RUST FUEL OIL
SO DIFFERENT IT'S PATENTED

Contains the amazing rust inhibitor RD-119...
which
Protects against corrosion and rust-clogged
filters and burner nozzles...
Reduces service calls...Builds good will and SALES.

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ANTI-RUST Super Flame ®

Scott elected President at annual Meeting of MOHA

THOMAS J. SCOTT, vice-president and general manager, Buckley & Scott, Watertown, Mass., was elected president, Massachusetts Oil Heating Association, Inc., Quincy 69, Mass., at its annual meeting held May 19 at the Hampton Court Hotel, Boston.

Other officers elected were: J. K. Mathewman, White Fuel Corp., vice-president; Fred Brehm, General Oil Co., treasurer and Catherine Y. Woodbury, C. Y. Woodbury, Inc., secretary.

Elected directors were: Charles McAlpine, Morton Oil Co.; D. E. Know, Oil Service of N.E.; Dick Gardner, General Heat & Appliance; F. Gordon Lenzi, Lennox Furnace Co.; Paul Rimbach, Chapin Oil Co.; Wm. J. Breed, Booma-Breed Co.; Larry Williams, Scott-Williams Co.; William Serpa, Dole Valve Co.; Sam Melnick, Marvel Heat and Francis W. Foley, Foley Supply Co.

Speaker for the evening was Thomas Scott. He presented to the group statistics on efficient management operation which he had gathered from successful oil heating companies in and around the New England area.

Tenth annual industry Rally held by Wisconsin OHA

THE TENTH ANNUAL INDUSTRY RALLY sponsored by the Wisconsin Oil-Heat Association, Inc., Milwaukee 2, Wisc., was held May 22 at the Milwaukee Elks Club.

Following a luncheon, the session was opened by Alfred Hegeman, president of the group and national chairman, Distribution Div., Oil-Heat Institute of America, Inc., New York 20, N. Y.

The first forum of the afternoon had as its moderator, Leslie A. Falk, sales manager, Wisconsin Ice & Coal Co., Milwaukee.

Speakers for the rest of the session included George Hochstein, sales manager, heating div., The Heil Co., Milwaukee and vice-president, O.H.I., whose talk was entitled, "The Heat's On"; Dr. William F. Krause, technical manager, The Globe Oil & Refining Co., Lemont, Ill., who spoke on

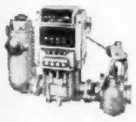
THE COST OF A GOOD METER IS PEANUTS . . .

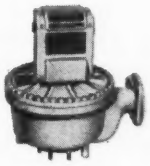
COMPARED WITH THE MONEY IT SAVES

One of your tank truck meters may be making 2800 fuel oil sales and handling $75,000 of your money every year! Your bulk plant meters are capable of delivering their own value in gasoline in less than half an hour! If a meter's accuracy slips only a fraction between tests, you can't afford the losses you'll have. Neither can you afford to test the meter all the time.

Maintenance costs are important, too, for every dollar spent on repairs means you lose the profits on *many* gallons sold. Sustained meter accuracy and low maintenance quickly outweigh all other considerations such as differences in initial price and pumping costs. Insist on the finest meters you can buy . . . Red Seals . . . for all your trucks and loading racks.

Want proof of sustained accuracy? Read what these Red Seal users say:





"I drove a tank truck with a Red Seal meter for six years, put 13,000,000 gallons through the meter, without a single repair bill," states a man in Texas.

Another Red Seal user in New Jersey asked Neptune to modernize six 3" meters that had delivered more than 60,000,000 gallons apiece. Each measuring chamber needed only two inexpensive replacement parts.

"We feel these meters paid for themselves within the first six months," says a Minnesota oil company which has Red Seal Print-O-Meters in four bulk plants.

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the "Latest Techniques in Burning Oils" and Claude Potts, general sales manager, U. S. Machine Div., Stewart-Warner Corp., Lebanon, Ind., and a director of O.H.I., who discussed "More Power from Manpower."

Also heard on the afternoon program was Fred S. Burroughs, national secretary, Distribution Div., O.H.I., whose talk was entitled, "The O.H.I. Treasury."

The evening program began with a cocktail party held in the Marine Dining Room of the Milwaukee Elks Club after which dinner was served. Dancing and entertainment rounded out the evening's activities.

API Marketing Division announces future Dates

AT THE CLOSE of the May 5 Dallas meeting of API's Marketing Div., program chairman J. C. Jordan of Shell announced that the division's 1954 spring meeting will be held May 17-19 at Denver's Cosmopolitan Hotel. In the spring of 1955 it will be at the Park Plaza Hotel in St. Louis.

The annual meeting this year will be at the Conrad Hilton, Chicago, November 9-12, with the 1954 meeting at the same place and the corresponding week. In the fall of 1955 the annual meeting will be at San Francisco's Hotel St. Francis. R. M. Bartlett of Gulf is API vice-president for Marketing.

Philadelphia service Managers vote to form local Association

A GROUP of Philadelphia service managers, meeting informally for several years, have formed the Philadelphia Oilheating Service Managers' Association at a meeting held at Jesse's Restaurant in Philadelphia, April 15.

Frank Knorr, Modern Heat & Fuel Co., Philadelphia, is president.

Other officers elected were: David Emmell, Esso Standard Oil Co., Philadelphia, vice-president; Jack Davidson, Cities Service Oil Co., Bala-Cynwyd, Pa., treasurer, and George Moore, Elliott-Lewis Corp., Philadelphia, secretary.

Knorr and Davidson both attended the organizational meeting of the National Association of Oilheating Service Managers held last March in New York City as uninstructed delegates. As a result of their attendance, affiliation with the newly-formed national group was voted.

At present there are 18 members of the Philadelphia association, representing 16 local oilburner and fueloil distributing companies.

The local group meets the third Wednesday of each month. George Moore was appointed chairman of the Publicity Committee.

OHA of Maryland sponsors Course at Vocational School

THE MERGENTHALER Vocational Technical High School, in cooperation with the Oil Heat Association of Maryland, Baltimore, Md., will offer a course for oilburner technicians starting in September, 1953. A young man enrolling for this special course will receive a High School Diploma.

Four newly formed Chapters join OHI Distribution Div.

FOUR NEWLY ORGANIZED GROUPS of fueloil and oil burning equipment dealers have been formally accepted

The GAGE that Guarantees SATISFACTION

FUEL-O-METER

DISTANT READING TANK GAUGE

A single glance will satisfy you on Fuel-O-Meters appearance but . . .

Look inside—see that there's . . . No liquid to leak . . . No glass to break . . . No floats . . . No hazard on tank over-fill. See the built-in quality and simplicity of this beautiful instrument.

Fuel-O-Meter is accurate with any grade of oil, under any condition of temperature, pressure and humidity. It's self cleaning, too.

Fuel-O-Meter is practical. The ⅛" tubing is easily concealed in the wall, like thermostat wire. It can be mounted anywhere . . . even in the dressiest living room. Everything about Fuel-O-Meter will satisfy you and your customer . . . even the price.

Use Fuel-O-Meter on every job. You can't lose. Satisfaction guaranteed or your money back.

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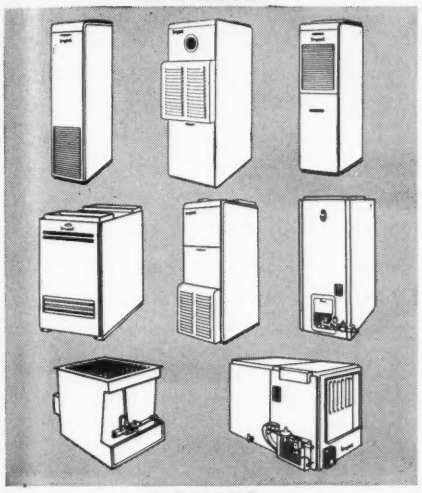
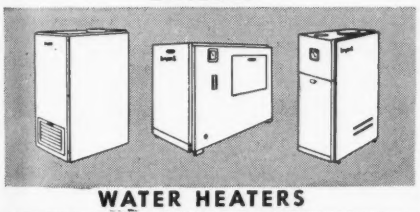
THE MOST
COMPLETE LINE OF
HOME CONDITIONING
EQUIPMENT IN
THE INDUSTRY

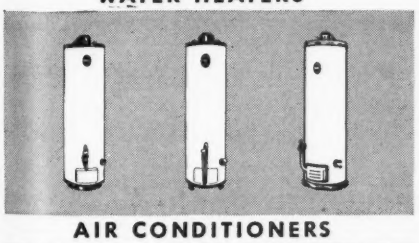
FURNACES



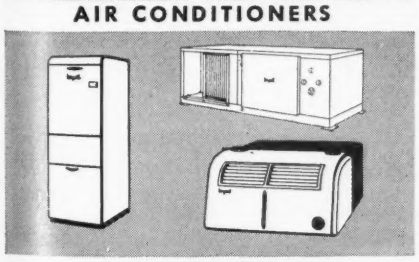
BOILERS



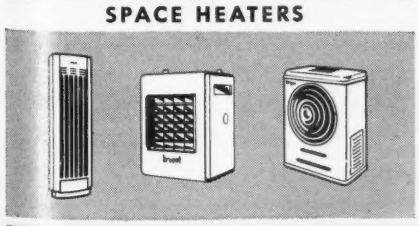
WATER HEATERS



AIR CONDITIONERS



SPACE HEATERS



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into membership in the Distribution Div., Oil-Heat Institute of America, New York 36, N. Y., F. S. Burroughs, national secretary, announced. This increase now brings the total chapter membership list of the national trade association to 38.

The four new chapters are: Oil-Heat Association, Gary, Ind.; Gotham Retail Fuel Oil Dealers Association, Inc., Brooklyn, N. Y.; Greater Philadelphia Fuel Conference, Inc., Philadelphia, Pa. and Bucks County Oil Heat Association, Bucks County, Pa.

The growth of OHI's Distribution Division in recent years, Burroughs stated, has now reached a pace where new groups are applying for membership at a rate of at least one chapter each month.

Truck operators' Manual available from Institute

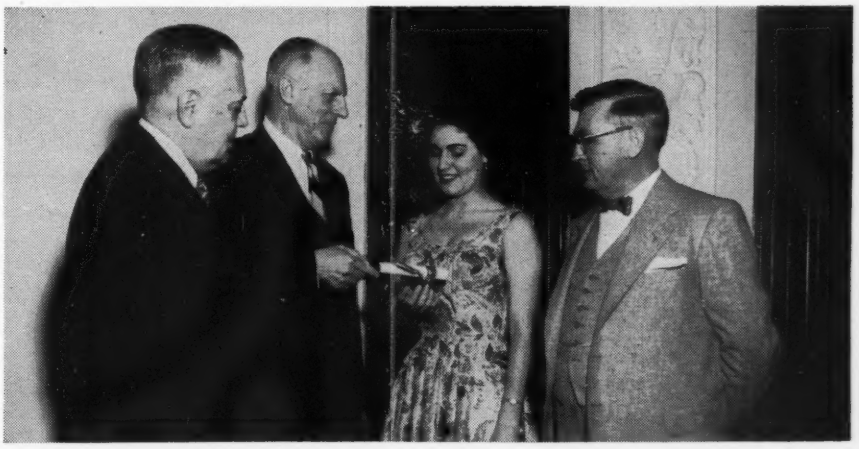
A TRUCK OPERATOR'S MANUAL, prepared by Oil-Heat Institute of America for use by retail fueloil delivery drivers covers safety, company delivery policies, loading and unloading procedures. In preparation for more than a year, the booklet is the product of the advice and suggestions of leading authorities on proper delivery procedures from all over the country. The content of the book has been prepared so that it is not specifically tied to any particular locality, but applies to any area.

The foreword of the 16-page booklet explains that its purpose is to "help toward better operation of your company truck," including suggestions for the conduct of a routine day. Opening with a discussion of truck driver qualifications, the booklets lists both desirable and undesirable attributes, follows with safe driving rules, inspection and maintenance tips and discusses accidents and the drivers' duties.

The last half of the manual specifically covers fueloil truck operation, loading and unloading, incorporating more safety precautions for the driver and the truck, step-by-step instructions for the driver's entire tour. The booklet ends by suggesting that fueloil truck drivers submit suggestions to their employers for improving or enlarging the instructions.

The Institute recommends that dealers purchase a copy of the manual for each of their drivers. They require no imprinting and are available in lots of 5 copies for $2.50; 20 copies for $7.00; 50 copies for $12.50 and in quantities of more than 50, 25¢ each. Orders, accompanied by remittance, should be sent to the Institute, 500 Fifth Ave., New York 20.

The manual is being made part of the OHI Treasury of Advertising.



Jack Becker, *Becker Marsden Co., St. Louis, Mo., and president, Oil Men's Club of Greater St. Louis (left center) is shown presenting the official Desk and Derrick Charter to Miss Marie Glitsos, Petrolite Corp., St. Louis, president of the Desk and Derrick Club of St. Louis. The presentation was made at a Desk and Derrick Charter dinner held at the Jefferson Hotel in St. Louis. Looking on are Charles Van Vleck, Tulsa, Okla., field manager, Independent Petroleum Association of America (left), who was the principal speaker at the dinner and Ross C. Shannon, Socony-Vacuum Oil Co., Inc., St. Louis, executive district vice-chairman of the Oil Industry Information Committee, API, who served as toastmaster of the affair.*

Problems of oilburner Service heard at Maryland Meeting

OIL HEAT ASSOCIATION OF MARYLAND, Baltimore 1, Md., had as its guest speaker, George H. Clements, Modern Heat and Fuel Co., Philadelphia, Pa., at its regular luncheon-meeting May 19 at the Hotel Stafford, Baltimore. Clements spoke on the administrative and mechanical problems of oilheating service.

Following the custom of the past years, the OHA monthly meetings will be discontinued through June, July and August.

Oil Men of Ozark Empire and Southwest Mo. meet Jointly

THE PRINCIPAL SPEAKER at the joint meeting of the Oil Men's Club of the Ozark Empire, Springfield, Mo., and the Southwest Missouri Oil Men's Club, Joplin and Carthage, Mo., held May 11, in Carthage, was Charley C. Brown, veteran of 50 years in the oil industry.

Brown spoke on "Free Enterprise and Its Responsibilities for Our Future Economic and Political Existence."

And when you know the reasons, you will understand why it pays to sell Nu-Way. First of all, there's a complete line of Nu-Way Oil Burners for both domestic and commercial installations with oil burning capacities from .5 G. P. H. to 20 G. P. H. Nu-Way is noted for quality oil burners . . . over 30 years experience in manufacturing oil heating equipment plus exclusive patented features.

In addition, dealers are helped in the sale of Nu-Way Oil Burners with national ads, hard-hitting newspaper ad mats, direct mail pieces, booklets and catalogs.

MR. DEALER: **See your supplier today for complete information, or write . . .**

THE NU-WAY CORPORATION
ROCK ISLAND, ILLINOIS
Sold through Jobbers and Distributors
Also Special Applications for Furnace or Boiler Manufacturers

OIL HEATING EQUIPMENT

"Automatic Oil Heat Exclusively Since 1921"

Kiernan named President of Oil Heat Old Timers

A RECORD TURNOUT marked the annual meeting of the Oil Heat Old Timers, Inc., Long Island City, N. Y. Held at Ryan's in Whitestone, N. Y., the meeting included a beefsteak dinner for members and initiates.

Ed Kiernan, E & E Oil Heating, was elected president for the coming year; Herb Helman, Helman Chimney Cleaning Co., Inc., was elected vice-president; Dick Lederer, Petro of Queens, became treasurer; Norman Munro of Delco Appliance was chosen secretary, George Gordon, Skaggs-Walsh, recording secretary and Vince Grasso, sergeant-at-arms.

Ten initiates were welcomed into the organization during appropriate ceremonies. They were: Bert Cowan, Hold-tite Valve Co.; Frank Cox, All Good Automatic Htg. Supply; Tom Douch, Petro of Mineola; George Gordon, Skaggs-Walsh; Fred Leibold, Fred Leibold Co.; Valentine Schmitt, Valentine Schmitt Co.; Mike Signoriello, Signoriello Fuel; Otto Rosenbum, Paragon Oil Burner; Jim Wargas, Liquidepth Indicators.

Heating Wholesalers plan second annual Convention

THE SECOND ANNUAL CONVENTION of the American Institute of Wholesale Plumbing and Heating Supply Associations, Inc., Washington, D. C., will be held September 20 through 23, 1953 at the Waldorf-Astoria Hotel in New York City.

This year the Association will honor presidents of firms manufacturing cast-iron boilers and radiators, and valves and fittings. They will be formally introduced at the September 23 morning session.

Already advance registrations have reached nearly 750, George T. Underwood, secretary of the group reports.

Registration fee for men is set at $25, for ladies, $20. Accommodations will be reserved at the headquarters hotel or at one of five other hotels on a first come first served basis.

Steak was really "rare" in the 90's

At the turn of the century the "butcher's wagon" was a familiar sight. For many rural families it was their only meat market.

Electric refrigeration has revolutionized food marketing, but equally important are the benefits to public health. Now, you can keep your steaks in the "pink of condition" for one day or fifty-two weeks, as you choose.

The volume production of dependable and efficient Emerson-Electric Hermetic Motors has been a contributing factor in making modern refrigerators and food freezers economically sound investments for millions of Americans.

Leading makers of motorized products for the farm, home, business and industry depend on Emerson-Electric's 62 years of motor building experience. For information on this complete line of standard motors in ratings from 1/20 to 5 h.p., and hermetic motors from 1/8 to 20 h.p., write:

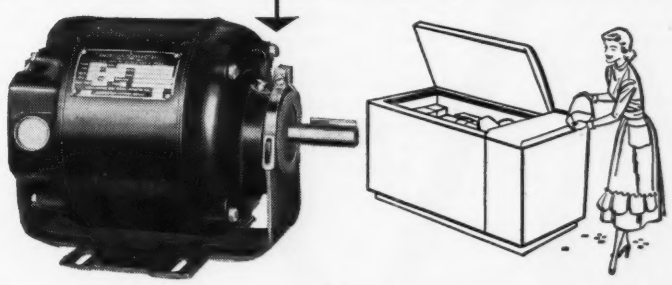
THE EMERSON ELECTRIC MFG CO., St. Louis 21, Missouri

MODERN LIVING **IS POWERED WITH** ELECTRIC MOTORS

Write for these Emerson-Electric Motor Data Bulletins

Manufacturers requiring motors 1/20 to 5 h.p. can profitably use these reference guides. Specifications, construction and performance data are included for these motors:

- ☐ M412-A Capacitor-Start
- ☐ M412-B Split-Phase
- ☐ M412-C Integral
- ☐ M412-D Fan-Duty
- ☐ M412-E Oil-Burner
- ☐ M412-F Jet Pump
- ☐ M412-G Blower



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MOTORS • FANS APPLIANCES

LEADERS IN THE MOTOR AND FAN INDUSTRY SINCE 1890

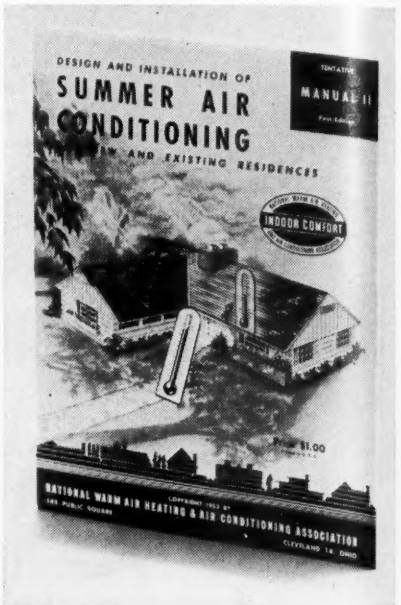
Warm Air Association issues summer airconditioning Manual

THE FIRST EDITION of Manual 11 on the design and installation of summer airconditioning systems for new and existing residences has been published by the National Warm Air Heating & Airconditioning Association. This "tentative" manual has been long awaited by the heating industry as a means of simplifying the design, sizing and installation of residential cooling systems.

Consisting of six sections, four of which deal with Construction recommendations, Design information, Step-by step procedures for determining BTUH heat gain, Selection of equipment and a heat gain calculation worksheet, it is exceptionally complete and easy to understand.

Material presented in the manual is based on the best information, data and industry experience available as of January 1953 and was prepared by the Summer Air Conditioning Committee of the NWAHACA. All the procedures listed in the manual are limited to residential systems with a cooling capacity of not more than 5 tons, (60,000 Btu) each.

The purpose of the manual is to give those interested in designing and installing summer airconditioning a simplified procedure applicable to residential central summer airconditioning systems. The publication, which consists of 36 pages, is not intended to supersede any specific instructions or design and installation recommendations published by manufacturers covering their own equipment or systems.

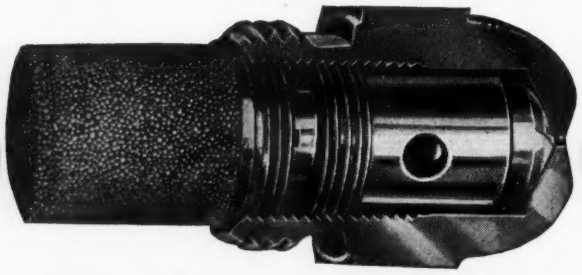


It is expected that a more comprehensive manual will be published by the Association following the completion of research investigations at the University of Illinois and the evaluation of test data obtained by the Field Investigation Committee.

Specific topics dealt with in the manual, other than the general headings listed above are, design temperature, areas of heat transmitting surfaces, total heat gain, ventilation heat gain, dehumidification, total cooling load, air requirements from the blower, design of distribution system, small pipe (4 inch round) perimeter system, perimeter loop system (slab floor), exhaust fans, fresh air requirements, duct insulation, waste water and controls.

Manual 11 can be obtained from the National Warm Air Heating and Air Conditioning Association, 145 Public Square, Cleveland 14, Ohio. Price is $1.00 per copy.

A SURE FIRE TIP . . .
FROM Monarch!



Look at These Nozzle Features:

1. Every Tip individually tested for Spray Angle and Capacity—your guarantee of uniformity.
2. Self-Centering internal assembly always produces a balanced spray—No lopsided fires.
3. Micro-Finish of Tip and Disc seats plus extremely close manufacturing tolerances insure accurate capacity control.
4. Will handle any domestic oils currently being supplied in the United States or Canada.
5. Tip, Disc and Locknut are made of a High Chrome Stainless Steel for maximum heat and wear resistance.
6. Five different series available for producing various spray characteristics —all developed through hundreds of *Fire* tests in both Laboratory and Field Work.

"48" Nozzle Box

Don't jumble your nozzles loosely in your tool box like "nuts and bolts" if you expect them to be usable. Carry as many as 48 nozzles securely in this sturdy, compact steel box.

Nozzle-Firebox Slide-Chart

No more digging through catalogs for proper nozzle capacities for certain loads, correct fire box sizes for different firing rates, or nozzle capacities at different operating pressures. This pocket slide-chart gives all these (and more) figures at a glance.

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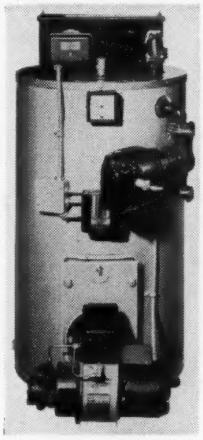
New Products

Fitzgibbons 770 boiler is pre-assembled Unit

NO. 770 BOILER is a complete, plant-assembled Fitzgibbons boiler-burner unit, furnished with a jacket and insulation, combustion chamber, Fitzgibbons oil-burner, primary control, operating control, thermostat, Tanksaver, flow regulator, relief valve, thermometer-altitude gauge, circulator, thermostatic control, automatic air vent, compression tank, flow check valve, pressure reducing valve, draft regulator, flue-gas retarders, drain cock, flue brush, SBI water treatment.

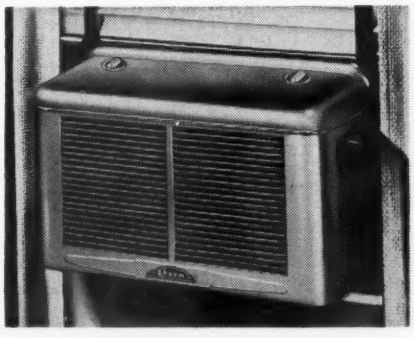


This steel boiler has a gross output of 115,000 Btu, SBI net rating of 77,000 Btu, and carries the ASME stamp. Like other Fitzgibbons boilers, the 770 is easy to clean. Removal of two wing nuts exposes all 15—2" tubes, while access to the combustion chamber and firebox is through a large burner mounting plate, removable without disturbing the jacket. Drain cock and three plugged openings permit flushing of the boiler without removing any piping or specialties. An instantaneous coil, providing 3 gpm of domestic hot water, is included.

Made by: Fitzgibbons Boiler Co., Inc., 101 Park Ave., New York 17, N. Y.

Rheem Mfg. adds window room Airconditioners

A NEW LINE of window type room air conditioners that cool, dehumidify, exhaust and ventilate, has been announced by Rheem. Designated Model 2050, the units are available in ½, ¾ and 1 h.p. sizes. A rotary type compressor with Freon refrigerant is employed. The hermetically-sealed cooling system is capillary tube-controlled and guaranteed for five years. Condenser and evaporator coils with aluminum fin surfaces are of continuous copper tube construction. All refrigerant connections in the units are silver soldered.

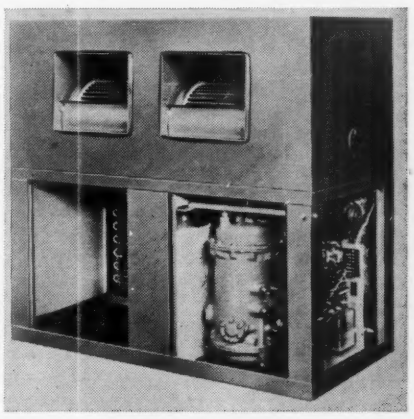


Fan motors for both the condenser and evaporator coils are permanently lubricated and specially-mounted on vibration-absorbing rubber. Water condensate is removed by sling action of the condenser fan ring.

Made by: Rheem Mfg. Co., 7600 South Kedzie Ave., Chicago 29, Ill.

Airtemp introduces air-cooled residential Airconditioners

AIRTEMP has introduced a new line, including redesigned hi-boy and lo-boy gas and oilfired warm air furnaces, but highlighted by two types of air-cooled airconditioners. Produced in 2 and 3-hp. sizes, both types employ outside air to cool the refrigerant that has removed the heat from the home. The units require no water or water piping.



One type is a self-contained package (illustrated), small enough to fit in attics, utility rooms and sub-floor crawl space and big enough to cool the average home up to 6 or 8 rooms. Outside air cools the refrigerant and home air drawn through the cooling coil is dehumidified, cooled and recirculated. Units stand 40" high, 40" wide and 22" deep. Another type has a condensing unit which is placed outside the home, connected by copper tubing to the cooling coil, located in the main furnace air discharge duct. Refrigerant is condensed and cooled, piped to the cooling coil, where the furnace blower forces warm air through the coil and distributes cooled air throughout the house. The warmed refrigerant is returned to the condenser and cooled by outside air. This all-weatherproof unit stands 22" high, 36" deep and 27" wide.

Freon-12 is used in 2-hp. airconditioners, Freon-22 in 3-hp. units.

Made by: Airtemp Div., Chrysler Corp., 1600 Webster Ave., Dayton 1, Ohio.

New Fiberglas duct Liner added by Owens-Corning

A NEW FIBERGLAS insulating product for lining the interior of airconditioning or warm air ducts is known as Flexible Duct Liner. The insulation has a high noise reduction efficiency and thus effectively reduces sounds that normally travel through air ducts. It also has excellent thermal insulating properties and when used inside of ducts allows

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Buy Taco

AIR VALVES

THEIR *Greater Dependability*

MEANS LESS SERVICE FOR YOU

Both CAN BE INSTALLED IN ANY POSITION BUT UPSIDE DOWN

Better Heating-Better with Taco

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137 South Street • Providence 3, R.I.

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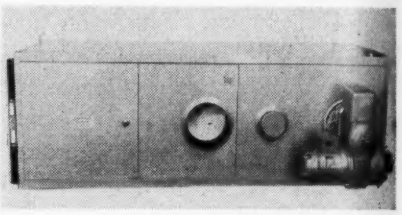
the metal surface to act as a vapor barrier, thus preventing condensation on those ducts carrying cool air through areas of high humidity.

Because of its flexibility, it may be installed on metal sheets before they are bent to form ducts. It is cut to match the size of the unformed sheets and adhered to the sheets, which then are formed in a sheet metal brake to produce a completed duct with the liner already installed. The insulation is sprayed with a light coating of fire-safe neoprene to prevent erosion by high-velocity air and to reduce frictional losses.

Made by: Owens-Corning Fiberglas Corp., Toledo 1, Ohio

Conn. State offers new three-way furnace Unit

A THREE-WAY FURNACE has been added to the line of oilfired winter airconditioners made by the Conn. State Furnace Company. These new models of 75,000 and 100,000 Btu per hour capacity are usable either as a suspended or a counterflow unit, and, having been designed for use in all restricted space installations (such as utility rooms, closets and attics in cellarless homes, gas stations and garages), are compact in size.



Using these units as suspended furnaces, they can be installed with the cold air return on either end, simply by reversing the unit and the burner, thus, leaving the burner in front at all times. These same units can also be installed as counterflow furnaces (for perimeter heating), by standing the unit on end with the warm air outlet on the bottom.

They are complete with large capacity, centrifugal type blower fan, rubber-mounted motor with variable pitch pulley for belt drive, or variable speed motor for direct drive, glass wool filter, and stainless steel combustion chamber. The cabinet is made of heavy gage steel, finished in gold baked enamel. Insulated with asbestos reflectrol (corrugated asbestos, aluminum foil faced). Humidifier is supplied as optional equipment.

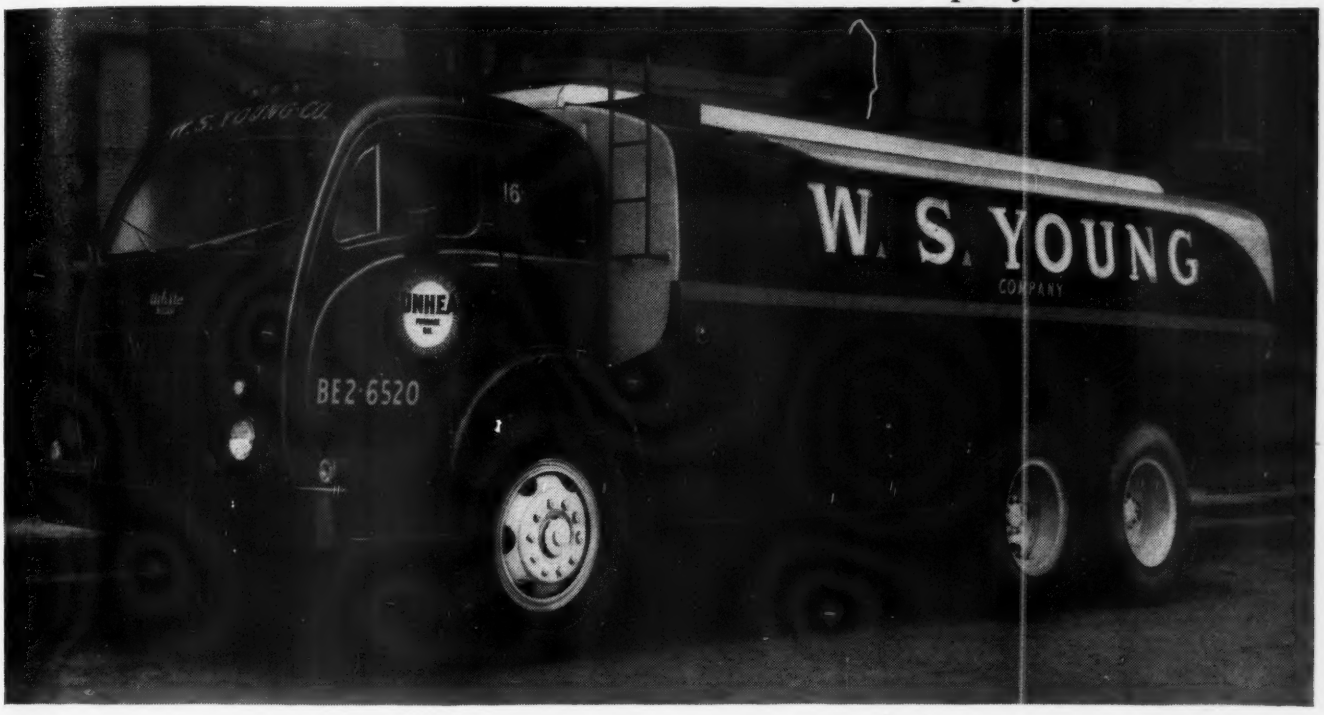
Made by: Conn. State Furnace Co., Inc., 340 Kossuth St., Bridgeport, Conn.

Edwards Spiral-Fin Radiation features a round Element

EDWARDS MFG. CO. now offers Spiral-Fin radiation. The construction of the fin is heavy crimped at the base providing efficient heat transfer between pipe and fin. The round fin element elimi-

Round the clock service with WHITE 3000 . . . transport by night, delivery by day!

. . . W. S. YOUNG Company, Brookline, Mass.



"**OUR WHITE 3000** six-wheel tanker is ideal for larger tank, longer haul operations," reports W. S. Young, who has tailored the White 3000 to his company's exact operations.

By night, this 4500 gallon tanker transports fuel oil from waterfront to storage tanks and handles emergencies. Next morning it is on the go, handling retail calls 10 miles or more away from terminal or on large tank stops.

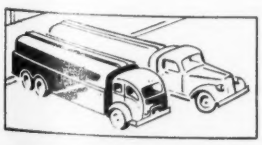
"It has paid for itself in transport savings," Mr. Young says, "and we save considerable come-and-go time because of the extra tank capacity and the terrific maneuverability."

Find out how WHITE 3000 CUTS COSTS . . .
Does MORE WORK . . . in your service.
See your White representative!

Tips its Cab to Service

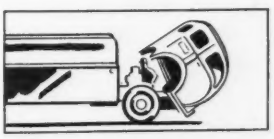
THE WHITE MOTOR COMPANY
Cleveland 1, Ohio

IN EVERY FEATURE . . . TOMORROW'S TRUCK TODAY

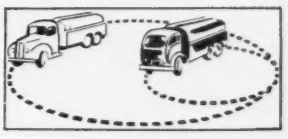


MORE PAYLOAD because of new weight distribution, shorter wheelbase. Takes less space on street and on the job.

DRIVER saves time at every turn . . . at every stop. Low, curb-level cab saves steps and saves energy.



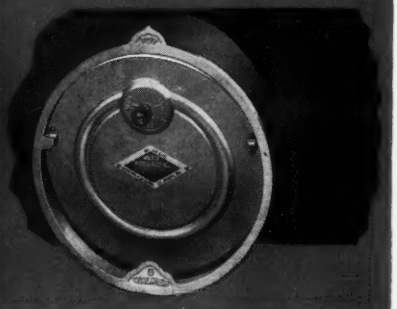
COMPLETE front-end accessibility because of power-lift cab. Savings of 25% or more in maintenance made possible.



SHORTER turning radius for better maneuvering, and substantial savings in driving time.

fuel oil & oil heat

Only WALKER Makes a Complete Range of Sizes of DRAFT REGULATORS



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● Fairlington Project at Washington, D. C., the nation's largest housing project, saves fuel with Walker Ball Bearing Type Industrial Draft Regulators. This widely heralded application is only one of thousands throughout the range of heating applications. Twelve Million sales speak for themselves . . . and give proof of Walker design, craftsmanship, and engineering. You can be sure that there is a Walker Fuel-Saver for your application . . . and that it will provide fool-proof and long-lived "performance as perfect as possible."

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1. **EASE OF ADJUSTMENT** with exclusive patented pointer and calibrated dial.
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4. **SPECIFIC PIPE SIZES** — insure correct capacity for every type of installation.
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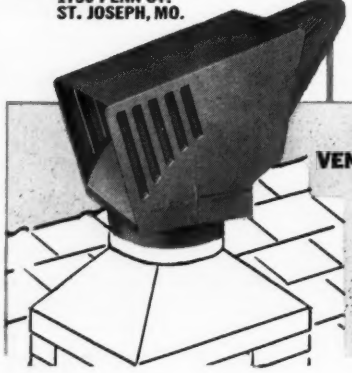


NEW WALKER VENTURI-TOP CHIMNEY CAP

is winning approval on more and more installations. Proved to be ideal in design and construction to correct insufficient draft and stop down draft . . . and to solve ventilating problems. Sizes from 3" to 8" ready for immediate delivery.

nates the necessity for lining up flat sides of fins with wall or grille and needs merely to be pulled up tight and left in position.

The pipe is not expanded or deformed during fabrication and for this reason the outside diameter is standard and may be threaded on the job. Spiral-Fin pipe radiation is available in standard lengths up to 21 feet, 2" and 1¼" in pipe size.

Made by: The Edwards Eng. Co., 101 Alexander Ave., Pompton Plains, N. J.

V & E packaged Unit rated at 480 sq. ft.

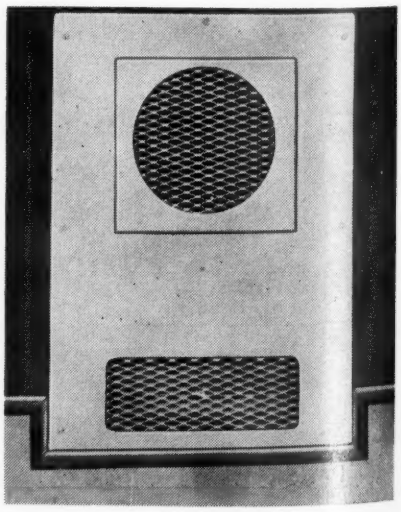
A V & E packaged unit consists of a complete oilfired boiler, wired and ready to operate. Rated at 480 sq. ft. of hot water and 300 sq. ft. of steam, both net standing radiation, standard accessories included are a circulator, flow control, oil filter, draft adjuster, domestic hot water regulator. Controls furnished with the package are a stack-switch, thermostat, operating Aquastat, reverse Aquastat, low water cut-off, circulator relay, high limit control.

Basically the unit is a steel water tube boiler, built of ¼" steel plate to ASME code requirements, with a precast combustion chamber and a built-in tankless domestic hot water coil to provide 3 gpm. Provisions can be made for an additional coil as an extra. Unit is fired with a gun type oilburner and is shipped with a flush jacket. On hot water boilers, the controls, piping and electrical connections are at the back of the unit and outside the jacket; on steam units, the water gauge glass is on one side and the pressure gauge on top.

Made by: V & E Products, Inc., Schuylkill Haven, Pa.

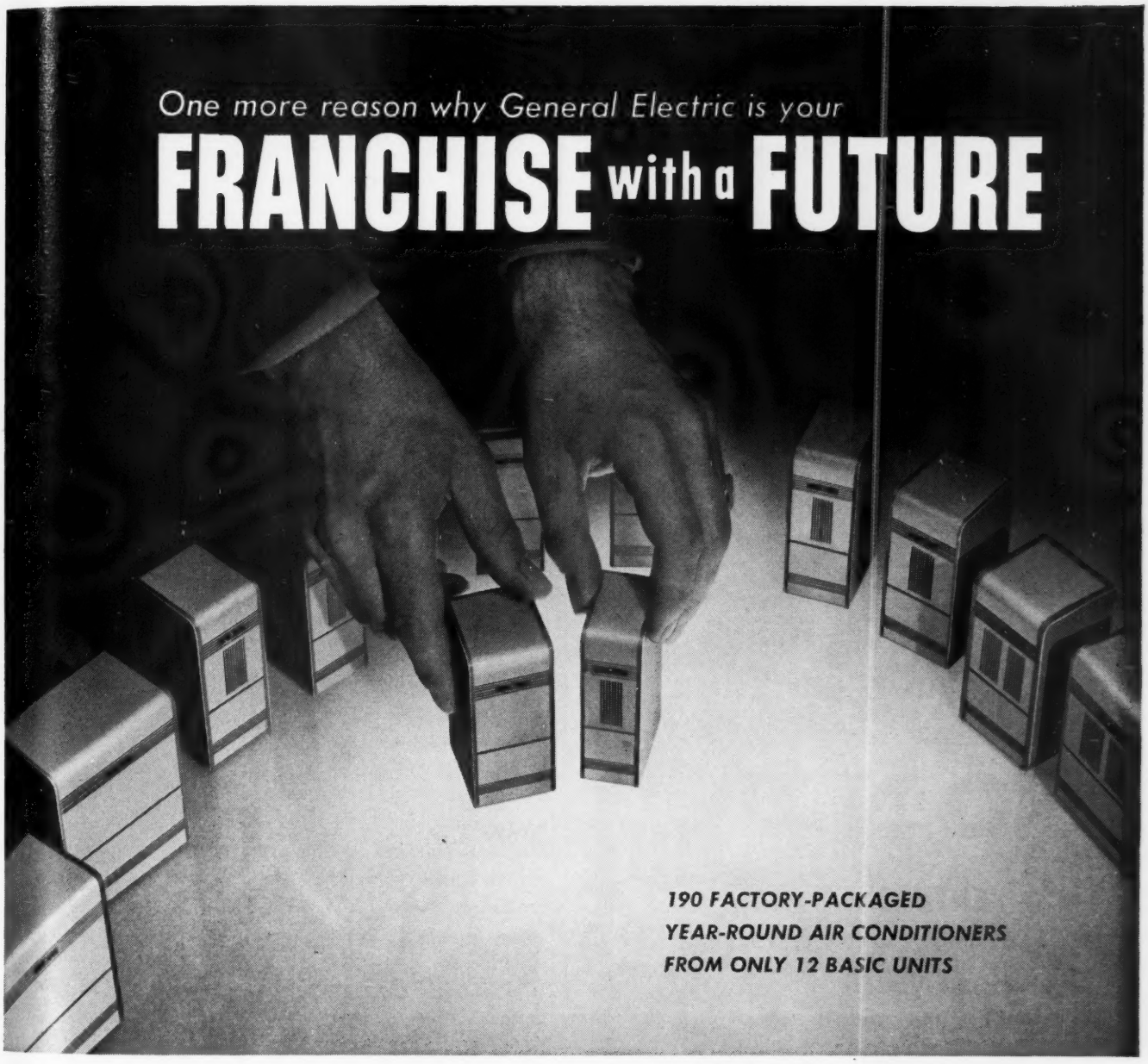
Cooling possible with Penn Air-Rad Units

PENN BOILER & BURNER now offers a new cooling system incorporated in its low-cost Air-Rad, which combines zone control and cooling for hot water heating. Air-Rad was introduced in 1952 as a zone control radiator operating off hot water systems.



The Air-Rad cooling system is of the fractional type. A single room or any group of rooms may be cooled without cooling the entire building, although cooling of the complete struc-

Home Cooling is EASY the G-E way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FRANCHISE with a FUTURE
190 FACTORY-PACKAGED
YEAR-ROUND AIR CONDITIONERS
FROM ONLY 12 BASIC UNITS

RESIDENTIAL AIR CONDITIONING is an exciting new business, and G.E. makes it easy to get into. Unequalled flexibility of G-E Pre-"Paired" Heating and Cooling gives 190 different year-round units from 12 basic models—choice of oil or gas, power supply and size—to fit any job. G.E.'s exclusive pre-engineered *Air-Wall* System is perfect for distributing both warm and cool air. G.E.'s factory-sealed refrigeration system frees you of installation and field service problems—it's quickly replaceable as a unit, and backed by 5-year warranty. Advantages like these, plus G.E.'s great 6-point profit program, make a G-E Dealership truly "The Franchise with a Future."

G.E.'s 6-POINT PROFIT PROGRAM

- ⟶ Most flexible and complete line of furnaces, boilers, and cooling units in the business.
- ⟶ Factory training for your men in application, service and sales.
- ⟶ Prospect-pulling national advertising.
- ⟶ Powerful sales promotion support—literature, signs, displays.
- ⟶ Special home builder program, packed with merchandising aids.
- ⟶ A name—General Electric—that enjoys top public acceptance.

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HOME HEATING AND COOLING WITH AIR WALL* SYSTEM

*Reg. Trademark of General Electric Co.

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Please tell me about my opportunities with a G-E Heating and Cooling Franchise. My principal business is .....

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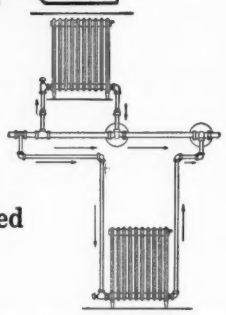
is all you need!

Supplied in cast iron, screwed, illustrated above, or in bronze for sweat connection (not illustrated).

Yes! For more efficient
ONE-PIPE HOT WATER SYSTEMS
install only
ONE
TACO VENTURI FITTING
per radiator - on return
(use a simple tee on supply...
ONE

TACO VENTURI FITTING

Yes! The same Venturi Fitting is used for upfeed or downfeed radiators



install
ONE
TACO VENTURI FITTING JOB
to convince yourself... you'll save money and aggravation!

Better Heating-Better with Taco

Taco

TACO HEATERS, Incorporated
137 South Street—PROVIDENCE 3, R. I.

ture may be obtained if desired. With allowance for line loss and with blower at full speed, Air-Rad cooling capacity is 5,000 Btu. Air-Rads may be installed for heating only and the cooling feature added at any later date.

Air-Rads are sized to fit between standard studs, and the only roughing-in materials required are ¾" tubing and ¾" elbows. Installations are set recessed in wall with the condensate pan for cooling placed in the bottom of the unit below the exchanger. The condensate pan, which is removable for cleaning, drains to basement floor pan or to sewer connection.

The model 9 Air-Rad weighs 24 pounds and provides 9,000 Btu heating capacity. Two sizes cover all standard installations. When blower is non-operative and water at 200° passes through the radiator, it has an output of only 90 Btu's. This is stepped up to 9,000 when blower is operating at full speed. It reaches full heat output in 25 to 30 seconds.

Made by: Penn Boiler & Burner Mfg. Co., Lancaster, Pa.

Thatcher 251 series Oilburner features all-aluminum Housing

THATCHER 251 series conversion oilburner, available in three sizes with capacities ranging from 0.6 to 1.25 gph, 1.0 to 2.0 gph and 1.75 to 3.25 gph, respectively, features an all-aluminum housing, stainless steel igniters, vaned-end cone and built-in cut-off valve in the fuel unit. Addition of this series gives Thatcher a line of oilburners with a capacity range from 0.6 to 20.0 gph.

Blast tubes for the 251 series are available in 8½" and 15½" lengths, 4" diameter; burners have a 7⅜" diameter mounting flange, are furnished with pedestal but no flange.

Made by: Thatcher Furnace Co., Garwood, N. J.

New Yorker adds V-28 boiler Unit to Line

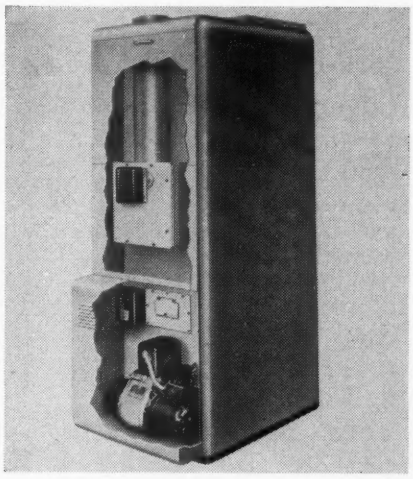
MODEL V-28 New Yorker steel boiler has been announced, with a rating of 480 sq. ft. of hot water radiation. The oilfired unit is equipped with a Quiet Automatic gun type oilburner, complete with three Perfex controls, and has been designed for the small home market. Standard equipment includes a 3 gpm tankless coil, built-in combustion chamber, flush jacket and hot water trim.

All fittings are on the top and in the front for easy accessibility. The boiler itself has a diameter of 22", stands 42" high; flush jacket measures 24" by 43".

Made by: New Yorker Steel Boiler Co., Inc., Colmar, Pa.

Bryant Model 314 is oilfired Furnace for basementless Homes

AN OILFIRED, down-flow type furnace for average-income homes has been announced by Bryant Heater. Known as Bryant Model 314, the unit is especially designed to fit into basementless homes. Heating ducts can be installed either in, or below, the floor, and the compact design of the furnace itself permits "close-clearance" installation in alcoves or closets, where necessary.



Model 314 features a drum-in-radiator heating element, which increases heating efficiency and assures quiet operation and a ceramic combustion chamber. Operation is completely automatic. Bryant has equipped the 314 with large capacity blowers and extra-sized air filters for maximum operating efficiency. The new unit is available in six sizes of 75,000 to 144,000 Btu/hr. bonnet output.

Made by: Bryant Heater Div., Affiliated Gas Eqpt. Co., 17825 St. Clair Ave., Cleveland, Ohio.

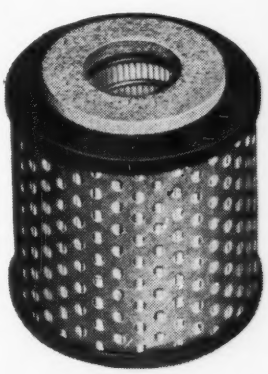
Heli-Coil inserting Tool molded of Nylon

HELI-COIL CORPORATION announces a new inserting tool molded of duPont nylon. Formerly the inserting tool comprised an aluminum sleeve with the prewinder thread in a tooled steel tip, but tests by users of the new nylon tool indicate that under comparable conditions the nylon tool should complete from 3 to 5 times as many installations as its predecessor.

Available in many popular sizes for use with Heli-Coil's entire line of stainless steel wire thread inserts, the prewinder thread in the tip of the tool compresses the diameter of the wire thread insert and aligns its helix to match the helix of the tapped threads to be protected. A slotted mandrel with a crank handle engages the tang on the insert. Turning the handle screws the insert into the nylon prewinder thread. The tapered nose of the pre-

Good news for you— and your customers!

Anti-spilling depressed cover . . . over 200 sq. ins. of filtering surface . . . stops dirt down to .0002 in. . . . more than 100 g.p.h. gravity flow capacity . . . 7,000 gal. per year dirt-retention life.



Purolator Filter Refills are interchangeable with other popular filters.

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Oil Burner Fuel Filter

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Made by the makers of famous Purolator* Micronic Automotive Filters—standard on America's quality cars—this new oil burner filter brings you installation and service advantages that put it at the top of its class!

Write for specifications and name of your nearest supplier.

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Fuel savings for your customers!
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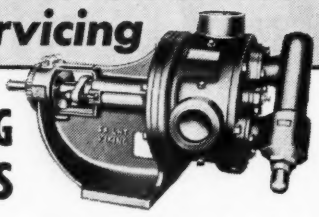

Specify VIKING TRUCK PUMPS

The Viking truck mounting pump is built to give good, dependable service day in and day out.

Equipped with integral thrust bearing and only two, big, rugged, moving parts, it delivers a smooth, constant flow. Its life many times exceeds that of the truck itself.

The revolvable casing permits handier port location to fit your mounting job. The easy thrust adjustment permits still longer service even after long and hard usage.

If you're looking for top performance over a longer period of time, it will pay you to install Viking truck pumps now.

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See Our Catalog in SWEETS

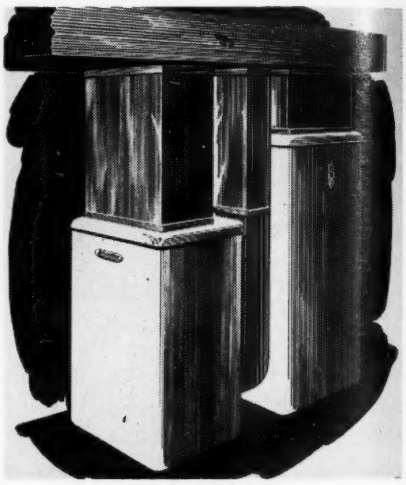
Viking PUMP COMPANY
Cedar Falls, Iowa

winder then is placed against the tapped hole. Further turning of the handle winds the insert into the tapped hole—the tool acting as a thread guide.

Made by: Heli-Coil Corp., 1285 Shelter Rock Lane, Danbury, Conn.

York-Heat announces airconditioning Unit

YORK-HEAT now has available the Shipley airconditioner in a 3 hp size that will be built in three sections making it easily adjustable to various types of cooling applications. All sections will be finished in white to match York-Heat's line of automatic heating equipment. The base unit contains the cooling unit section, and the conditioner is hermetically sealed and mounted in a cabinet 24″ wide by 22⅛″ deep, by 40 5/32″ high. Two 16″ by 25″ by 1″ filters are located on the air intake side, the air passes over a three-row aluminum fin cooling coil and is discharged through the top of the unit. Another feature is a cleanable water-cooled condenser.



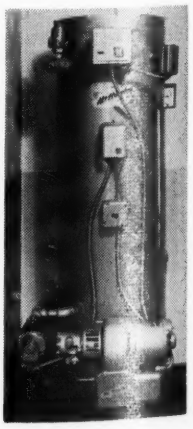
For installations where a blower is required, a blower unit section 15″ high is mounted on the cooling unit with rubber mounts for quiet operation. The grille unit rests on the blower section for ductless installations. It is 14″ high and makes the complete unit 72″ high. The grille is mounted at an angle, assuring maximum air distribution without drafts.

The cooling unit can be tied into an existing warm air installation and the furnace blower used to circulate the air.

Made by: York-Shipley, Inc., York, Pa.

Mt. Hawley Mfg. Co. offers packaged Unit

A PACKAGED oilfired boiler-burner unit, the Budgeteer, has been announced by Mt. Hawley. The unit of modern and simple design incorporates the features of low stack temperature and quiet operation, and also provides a complete package to the contractor with considerable saving in installation time.



The unit, available with or without tankless coil, comes completely wired and assembled and is rated at 80,000 Btu net. A slide inspection port gives direct view of electrode and nozzle assembly. Jacket top and smoke hood are quickly removed for cleaning tubes.

Made by: Mt. Hawley Mfg. Co., Peoria 4, Ill.

ASK TO SEE THIS

Desk-Top Demonstration

Miniature Meter and Accessories Quickly Show the Advantages of A. O. Smith *Unitized Construction*

WHEN you see this miniature meter and its *functional* accessories being assembled, dis-assembled and re-assembled in many different ways, you'll quickly appreciate the importance of A. O. Smith *unitized construction.* And it's much more fun than to study blue prints, exploded views or technical explanations!

You make your own selection of components to suit your needs. Wide choice available plus variable ways of attaching inlet and outlet fittings. Meters can be changed from right to left-hand flow or left to right-hand flow to best suit piping arrangement. Additional functional accessories may be added without disturbing original unit or discarding parts already purchased. Ask nearest representative for this desk-top demonstration in your own office. A. O. Smith Corporation, Meter Division, 5715 Smithway St., Los Angeles 22, California.

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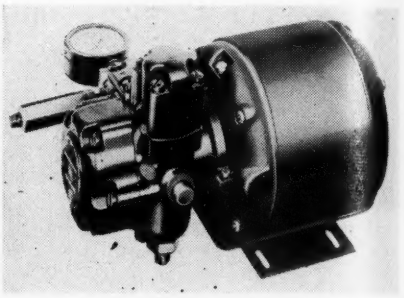
BORG-WARNER CORPORATION
310 South Michigan Avenue, Chicago 4, Illinois
Plant: New Castle, Indiana

Webster Electric supply Pump lifts Oil 15 ft. from Tank

MODEL 17336 fueloil supply pump has been added to the Webster Electric line, designed for suspended heater installations where high lift and pressure requirements necessitate an auxiliary or supply pump. The motor-driven unit will deliver up to 30 gph maximum, with a pressure head of 17 ft. above the supply pump on a single pipe system, or a lesser amount as the pressure head is increased.

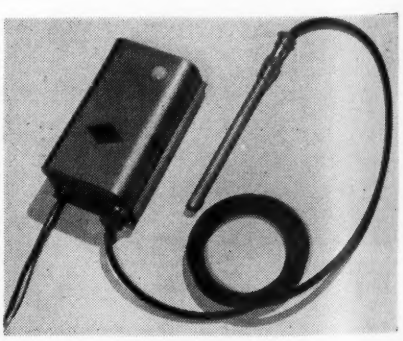


Model 17336 is capable of lifting the oil 15 ft. from the fuel tank and can supply any number of overhead heaters providing that their combined firing rates do not exceed pump capacity. A 1/6th hp., 115-120 volt, 60-cycle motor and mounting plate, self-regulating check valve and pressure gauge are standard equipment.

Made by: Webster Electric Co., Industrial Sales Div., 1900 Clark St., Racine, Wis.

Electronic liquid level Control is flexible Unit

BASED on the capacitive action of liquid surrounding a porcelain-enamel-covered-electrode, the new Belmont Level Control provides adjustment of liquid level and cut-in, cut-out differential over very wide limits. In operation, the new unit consists of the probe; which is mounted directly at the location of the controlled liquid; a connecting cable which can be 1000 feet long if necessary; and the control unit which can thus be located for operating convenience. The two main controls (liquid level and differential) are designed for screwdriver adjustment while a vernier or fine control on liquid level is operated by a panel-front knob.

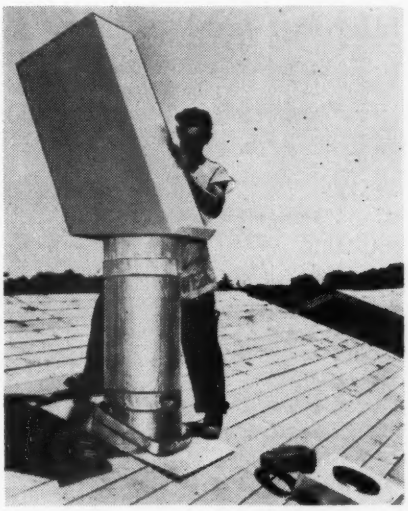


Standard models operate from 115-volt 60 cps supply while special units are available for 230-volt or 25 cps operation. The snap-action relay included in the unit is rated for 10-amp at 115 and 230 volts. An indicator light in the panel front indicates operation of the relay —burning at full brilliance when the relay is open, at half brilliance when the relay is closed.

Made by: Thermo Instruments Co., 1166 El Camino Real, Belmont, Calif.

Van-Packer presents all fuel, masonry Chimney

THE VAN-PACKER packaged, masonry chimney, which can be built in three hours by one man, has a fireclay tile lining and 3" Vermiculite concrete wall. It is acid proof, capable of withstanding 2000° F. and has the insulating efficiency of 24" brick chimney construction. Underwriters' does not require clearance to wood construction members needed at the rough ceiling or floor of the house.

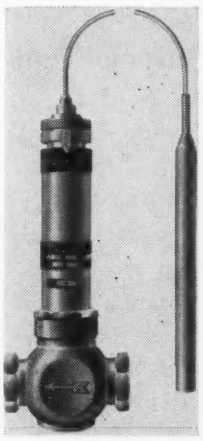


Maximum heater output for a 7" ID flue, 20 foot floor suspended model, oilfired, is 300,000 Btu; for 10" ceiling suspended model with oilfired heater, the maximum heater output is 200,000 Btu/hr.

Made by: Van Packer Corp., 209 So. La Salle St., Chicago 1, Illinois.

Series "V" temperature Regulators by Farris Stacon

SERIES "V" is a new line of self-operated temperature regulators. Designed in either direct or reverse acting types for heating and cooling applications, the regulators can be employed to handle steam, liquids, gases and all fluids not corrosive to brass.



The units operate on the simple principle of liquid expansion. Since the liquid expansion is proportional to increments of temperature, the valve movement is gradual. The result is a gentle, but positive, throttling, where the valve supplies only enough steam or cooling medium to maintain the desired control temperature. Series "V" temperature regulators supply the following features: Simple, rugged, field replaceable thermostatic system; tight shut-off; operating principle insures positive, uniform throttling action; overload protection; dial adjustment; reduced maintenance; low cost thermostatic system; compact, sturdy unit. The ½" regulator is only approximately 8½" overall.

Available in sizes ranging from ¼" to 4", Series "V" regulators will control temperatures between 25°F. and 275°F., with a 50°F. range of adjustment. Their inlet pressure limit is 125 psig and inlet temperature limit is 450°F. They are constructed with bronze bodies, renew-

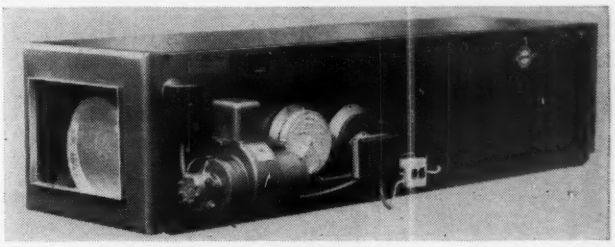
Horizontal Furnaces Opening New Profit Opportunities

Heating Contractors Help Builders Beat Rising Costs and Make Money Doing It

Keeping the cost of new homes within the reach of potential buyers is a major problem today. Builders and contractors are meeting it in two ways: First, to beat the high cost of single lots, they are developing large tracts of land and building many homes at the same time. Second, they are eliminating every possible costly feature—basements, garages, even service rooms.

New "Besser Junior" Opens New Field

This is opening up a whole new field of opportunity for the heating contractor and distributor—the sale and installation of underfloor central warm air heating systems. The sensational NEW "Besser Junior" makes central heat possible in even the lowest cost homes.



The Besser Horizontal Furnace Needs No Basement or Utility Room—Can be Installed Under-floor or Overhead

Because of the great savings, more and more builders are turning to the new type horizontal, oil-burning furnaces. A central heating system adds value to any house, makes it easier to sell—is far superior to floor furnaces. Now, the NEW "Besser Junior" brings central heat within every price range.

Here's Where Profits Are Made

Bidding on the big jobs is always competitive, so where do you come in? Here's the answer: to start with, you've got something to sell—the answer to a builder's prayer—a way to put central heat into every house without the cost of a basement or utility room. That's a natural advantage. Now, the cost is lower than ever.

Still, you may have to figure closely, so where's your profit? Right here! Service call-backs are what eat up your profit. When you install a Besser Horizontal, service calls are fewer—far fewer—because only the best goes into a Besser! Properly installed, it's virtually trouble-free. Call-backs will be few and far between. Every Besser is fully guaranteed . . . because it's built to last!

Besser Plant Facilities Expanded 50% to Meet Growing Demand

Dual Sales Possibilities—Overhead, Underfloor

Quiet, automatic Besser Horizontals are equally adaptable to overhead installation on commercial jobs where floor space is at a premium. One furnace gives you a double sales potential. Full range of sizes to meet every job need—delivered to you assembled, ready to install.

New Territories Opening—Inquiries Invited

Greatly expanded plant facilities make it possible to serve a larger area. Distributor franchises and dealerships in certain areas offer a real opportunity for profit in a product you can sell with confidence. Inquiries from aggressive Manufacturer's Agents invited. For full information write: Besser Metal Products Corp., 754 Clement Ave., P. O. Box 4064, Charlotte, N. C.

Install Fin-Tube Radiators Faster...

You save time and money on fin-tube baseboard radiator installations with GENERAL's "ready-to-install" Special-Tee Fittings. These 3-way reducing tees come to you with factory-tapped air vent opening . . . just screw in air valve, connect riser pipe and fin-tube — and the job's finished, that quick! No drilling, tapping, or bushings needed.

Why not standardize on these Special-Tees? It's a sure way to lower your costs and do a better, cleaner-looking job. They're available in Bronze Solder-Type, or in Cast Iron for both supply and return ends. (Fittings for supply end furnished without air vent opening.) Illustrated folder gives sizes and detailed information. Write General Fittings Co., 125 Georgia Ave., Providence 5, R. I.

GENERAL GF

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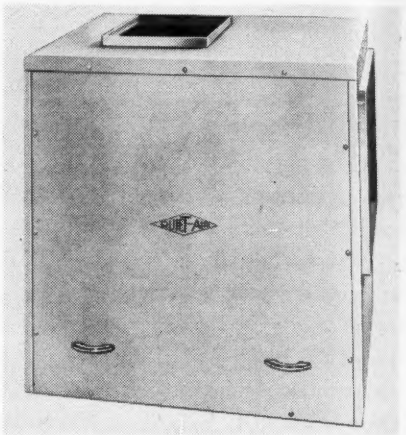
WATER HEATERS AND HEATING SPECIALTIES

able bronze or stainless steel seats and discs and have an 8′ nickel plated copper capillary and nickel plated brass bulb standard.

Made by: Farris Stacon Corp., Palisades Park, N. J.

Quiet-Air develops home Airconditioner in two Sizes

A NEW completely packaged home cooling unit has been developed by the Abco Refrigeration. It provides for cooling, dehumidifying, filtering and ventilating. Designed for use in conjunction with warm air heating equipment, Quiet-Air units can be adapted to any type or make of furnace. Available with its own blower, installations are possible in homes with hot water or steam heating systems or where there is no heat required.

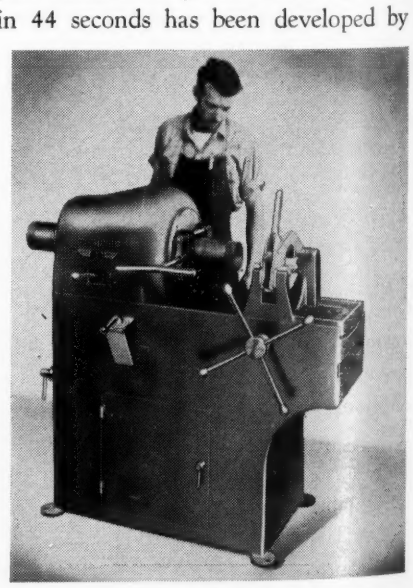


Included is a hermetically-sealed refrigeration system, covered with a five year warranty. Completely self-contained, Quiet-Air is furnished in a single package with or without ventilating fan and occupies less than five square feet of floor space, standing slightly less than 3 feet high. Units can be had in 2 or 3 hp models.

Made by: Quiet-Air Mfg. Div., Abco Refrigeration Supply Co., 1615 Second Ave., New York 28, N. Y.

Quijada Tool offers power-operated Chuck

A POWER-OPERATED, automatic chuck, which threads, reams and cuts 4″ pipe in 44 seconds has been developed by Quijada Tools. For pipe in sizes of 2½, 3, 3½ and 4 ins. the Thred-O-Matic "44" is equipped with die heads. Adapters are available to handle ½ to 2 in. pipe.



Simple to operate, Thred-O-Matic "44" has eight hobbed jaws, four in front and four in rear, which grip pipe tighter as the torque is applied. The auto-type transmission has four speeds forward and reverse, coupled with a two-speed motor, giving eight speeds forward. The op-

"Galongage builds customer satisfaction and sells oil burners for me"

No wonder more and more dealers today are using Galongage. With Galongage you cut installation time and service calls to a minimum. You will find customers appreciate its greater accuracy and appearance too — a constant reminder that you have given them the best in heating equipment. Remember their good will is your greatest asset.

Do justice to a quality job by installing the best — Galongage. Write today for complete details.

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with
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ESTIMATORS
find it's
A TIME-SAVER

THIS pocket-size book shows the required radiation for all rooms of ordinary size with from one to three windows, one to three exposures, and every combination of walls exposed. Figures are based on calculations of the space by the Btu method on a 0° to 70° design temperature. A table shows corrections for other design temperatures.

Other sections of the book show the square feet of radiation in each section of radiators of various styles and designs. A wealth of information on required radiation that can be carried easily in a pocket or brief case, or used as a desk reference.

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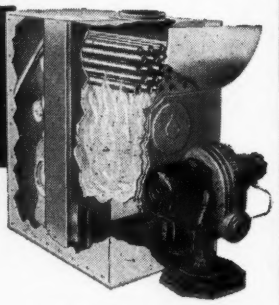
THE Radiant
OIL FIRED WINTER AIR CONDITIONER



Precision Engineered for Economy in Price—Installation—Operation

SUPERIOR DESIGN — Tubular construction presents greater heating surface to flue gases than conventional furnaces . . . jacket is substantial and well finished . . . high temperature combustion chamber . . . motor driven blower unit and air filters.

FACTORY ASSEMBLED—Shipped complete with combustion chamber installed and jacket completely assembled.

Available in Four Models: Low Boy, Suspended Unit, Hi Boy, Counterflow

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8815 18th Avenue, Brooklyn 14, N. Y.

RADIANT OIL BURNER

erator has positive control of the threading operation at all times. Thred-O-Matic "44," with its flat blade reamer attached to the die head, cleanly reams the inside of the pipe during threading. This reamer may be removed for running threads.

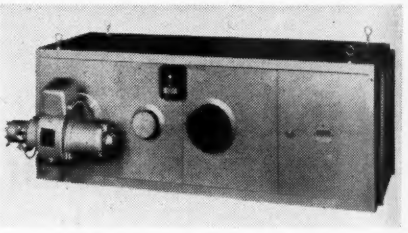
While utilizing four high speed dies in each head, one screw simultaneously adjusts all dies for changing depth of thread. A set screw located between each die permits individual segments to be adjusted easily. The cutter mounted on the front jaw housing of the Thred-O-Matic "44" allows the operator to place fitting on pipe immediately after threading. Cutter is removable for short nipples.

The two-speed, three hp. motor operates on a 220 volt, 50-60 cycle. Automatic magnetic switches assure overload protection. With its motor speed control, the machine allows the operator to change speed of the motor to fit the job. When coupled with the transmission, this motor gives multi-speed range. A belt-driven oil pump direct from the motor gives continuous flow of oil through the tubing located in each die head.

Made by: Quijada Tool Div., Gaines-Collins, 5474 Alhambra Ave., Los Angeles 32, Calif.

Quick Heat suspended Furnace with double burner Mounting

QUIET AUTOMATIC now is making a suspended oilfired furnace for small homes that comes completely assembled, ready with eyes, for suspension. Its flange - mounted oilburner can be revolved in opposite directions to give either a right or left unit by simply turning the burner over.



Shipped with a stainless steel combustion chamber, all controls are mounted on the front for easy wiring and accessibility. Units are available in 80,000 and 112,000 Btu per hour sizes.

Made by: Quiet Automatic Oil Burner Corp., 33 Bloomfield Ave., Newark, N. J.

Bristol expands chart printing Facilities

THE EXPANSION of its engineering and production facilities for printing recorder charts for instrument companies has been announced by The Bristol Company. Circular charts up to 18" in diameter and strip charts up to 29⅝" wide can now be produced for all types of instruments.

Specially developed equipment makes it possible to produce charts printed on a great many different kinds of paper, such as wax coated, heat sensitive, chemically coated, smoke covered and electrically sensitive. Bristol has also expanded its engineering service to help instrument builders develop charts best suited to meet the requirements of their application.

Made by: The Bristol Company, Waterbury 20, Conn.

Everyone Can't Sell...

BUT ALMOST ANYONE CAN LEARN TO SELL...

SPECIAL PRICE

THE SELLING MAN $4.00 A COPY

(WE PAY POSTAGE)

For the benefit of those breaking into selling and for improvement of active salesmen, W. A. Matheson, a director of Eureka Williams Corp., wrote an exciting book on selling techniques that has helped thousands get ahead faster. He calls it THE SELLING MAN. He believes that almost anyone can sell if he'll take the trouble to learn. The techniques he suggests are practical because he has tested them himself. The $4 investment is a tiny price for so much helpful and profitable information to attain greater success.

PLEASE MAIL REMITTANCE WITH ORDER!
PLEASE NO C.O.D. ORDERS.

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Rochester **UNIVERSAL®**
oil tank gauges

available from jobbers and wholesalers throughout U.S. and Canada

TO SAVE YOU time, freight costs and inventory headaches, Rochester UNIVERSAL® oil tank gauges can be readily obtained right off the shelf from leading jobbers and wholesalers throughout the United States and Canada.

WHATEVER THE WEATHER . . . IN ANY CLIMATE, you need to stock only this one gauge for all installations—inside and outside. A new type, hermetically-sealed plastic head makes it absolutely weatherproof, dustproof and shockproof. And because of the magnetic action, there's positively no danger of leaking fumes or seepage. This *eliminates* the possibility of customer complaints due to gauge failure.

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MANUFACTURING COMPANY, INC.
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ROCHESTER ACCURACY GAUGES

ROCHESTER MANUFACTURING CO., INC.
8 ROCKWOOD ST., ROCHESTER 10, N. Y.

☐ Send me name of Rochester Wholesaler nearest me.

☐ Send me full details on Rochester UNIVERSAL® Oil Tank Gauges.

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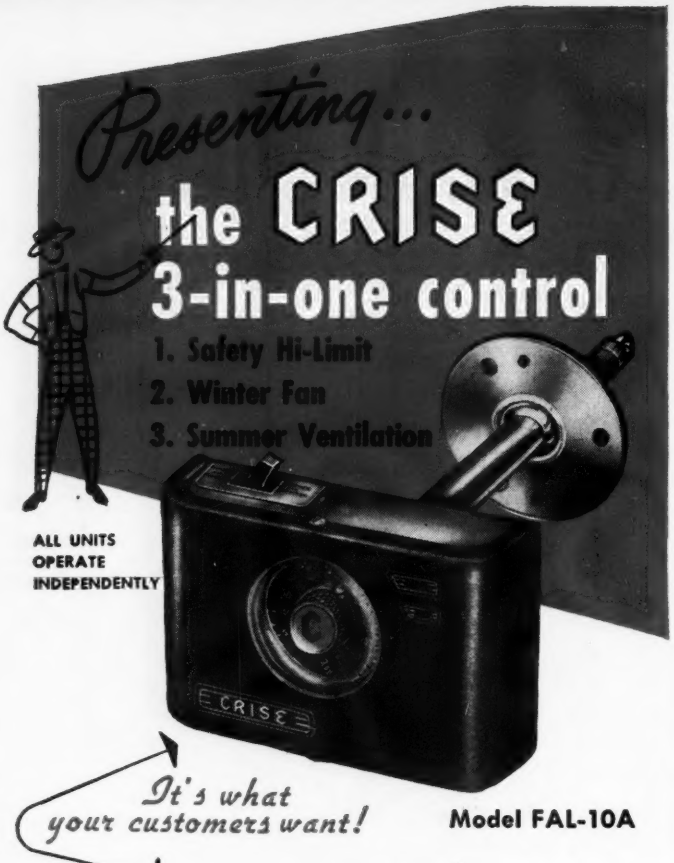


It's what your customers want!

Model FAL-10A

Here's our latest addition to the Crise line of better performing, better looking, *more saleable* controls. It's a combination winter fan and limit control with the added feature of an easily accessible manual switch to provide continuous summer ventilation. All components operate separately and independently of each other . . . all are engineered in the Crise tradition for dependability and long life.

You can sell this and other *economically priced* Crise controls at a good profit while giving your customers the highest quality and best value. See your jobber or write us for details.

CRISE **THE MOST VERSATILE LINE**

These multi-purpose controls save in inventory—permit stocking half the normal number of control types.

TYPE FOL-60
Warm air limit control or fan control

TYPE FOL-70
Hot water control, immersion type

TYPE FOL-50
Hot water control, surface type

TYPE FAF-15
Two speed furnace fan control

TYPE FAL-80
Hot water control, dual circuit, immersion type

CRISE CONTROLS
a division of
ACRO MANUFACTURING COMPANY
Columbus 16, Ohio

Holan service Bodies for ½, ¾ and 1 ton Chasses

A SERIES of Holan General Service Bodies are available for ½, ¾ and 1 ton chasses. Model series 1075 are built for installation on ½ ton chassis. Built to withstand rough treatment, they are constructed of high tensile steel throughout with non-skid floor plates as an added safety feature. Flush type door handles and concealed hinges minimize breaking and jamming and give a smooth external appearance. Compartments on standard models are 13" wide. Over 30 accessory items, including pipe racks, ladder racks, pipe vises, pipe vise brackets and rear channel bumpers are available.

Model series 1090 for ¾ to 1 ton chassis ratings are furnished with high or low roof or open top. These models are popular for general service work with ample space for storing tools and small parts. Vertical and horizontal compartments are 14¼" wide and have adjustable shelves. A through compartment may be installed, as optional equipment, in the vertical compartment. Horizontal compartments have double trays with adjustable partitions.

Made by: J. H. Holan Corp., 4100 West 150 Street, Cleveland 11, Ohio.

Glo-Melt soldering Unit useful in control work

THE PENCIL HANDPIECE, used with a Glo-Melt resistance soldering unit, is a feather-light accessory that weighs only ½ ounce, measures 5" long and is ⅜" in diameter. Designed especially for sensitive and precise work, the unit is available in two styles: Model A, holding ⅛" carbon tips and model B for 3/16" tips. Both are designed for instant conduction soldering by establishing a ground circuit through the standard Glo-Melt grounding clip and lead, or with special mating plugs, sockets or fixtures.

Made by: Wasserlein Mfg. Co., 126 W. Cass St., Joliet, Ill.

Reo Motors now offers optional front-end Design

REO MOTORS, INC., has announced an optional front-end design for its trucks and tractors in all models, reducing the overall dimension from the bumper to back of cab to 102". The new design was developed as a result of studies by the American Trucking Association and permits the use of a 35-foot trailer while still remaining within the 45-foot overall combination length, is the maximum per-

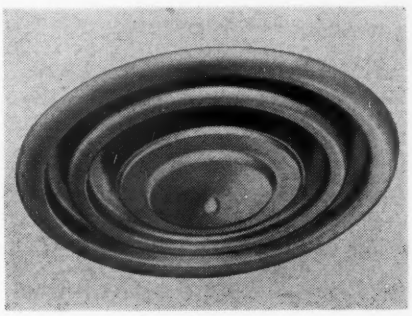
mitted in many states. The new design is shorter than standard Reo models by 4⅛", all of which has been removed from the front of the hood and frame. The grilles of the new models present a more flattened appearance as a result.

The 102" dimension is primarily of interest for tractor units. It can also be valuable in congested metropolitan areas for straight truck work because of the additional maneuverability.

Made by: Reo Motors, Inc., Lansing 20, Mich.

Kno-Draft Diffuser made for unit Heater

MADE FOR ATTACHMENT to down-blow unit heaters, the new Connor Engineering Kno-Draft Type KU differs from the conventional supply and return diffuser in that discharge is through the inner orifice and return through the outer. The diffuser's design and adjustment features prevent "short-circuiting" or merging of the two air streams.

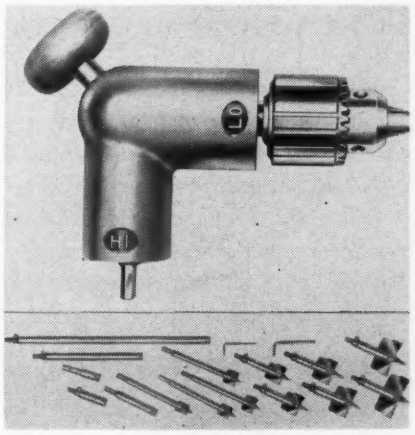


Where formerly a simple supply diffuser and one or more separate return grilles were needed for this type of installation, one compact device now serves to both introduce and return air, substantially reducing cost. The combination unit heater and diffuser is used in hard to heat spots, the so-called "cold" areas, perimeters, vestibules and corridors, which require more warmth than the remainder of the building. Available with supply necks of 11 to 22 inches diameter, the diffuser fits any standard unit heater.

Made by: Connor Engineering Corp., Shelter Rock Lane, Danbury, Conn.

RCS announces right angle Attachment, Super Speed Bits

RCS KORNER KING right angle drill attachment and Super Speed bits have been designed to increase the versatility of any heavy duty ¼" electric drill. The right angle drive triples the range of the drills by adding two more speeds. Korner King converts ¼" drills of 2,000 rpm to 1,000 rpm with 80% more power, reverses this gear ratio in seconds by snapping off



YOU MAY BE SATISFIED WITH YOUR PRESENT SET-UP

But have YOU Considered What U.S. OIL BURNERS has to offer

THEY OUTSELL BECAUSE THEY EXCEL

Have You Considered the amazing sales record that *HTCH has built for U. S. Oil Burners? For example — in a major metropolitan market, U. S. Oil Burners are currently outselling the next five leading brands combined.

Have You Considered the advantages of selling such "consumer-demand" features as the *HTCH which, combined with the exclusive Vernier-Flame Control provides the cleanest, most efficient and economical oil heat possible?

Have You Considered the advantages of becoming associated with a young, aggressive organization, headed by men successful in the oil burner field and who realize that your success is their success?

Have You Considered the lasting benefits to be derived from handling a line of oil burners that you can *sell* with *profit* — *install* with *confidence* — and require a *minimum* of service?

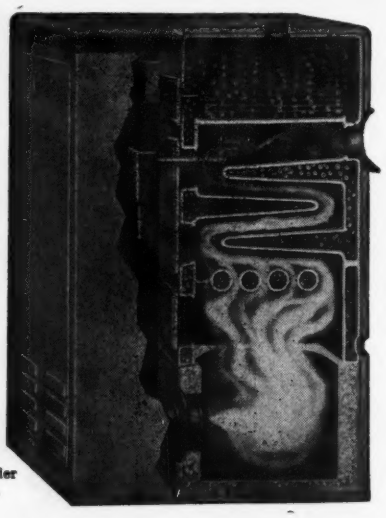
*HTCH — High Temperature (Shell) Combustion Head

INTERESTED? WANT MORE DETAILS?
Contact your supplier or write us today.

U. S. BURNER DIVISION
THE CARLIN COMPANY • WETHERSFIELD, CONN.

Steel HEATING UNIT

5 YEAR GUARANTEE AGAINST LEAKS



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Magic-HEAT

Product of MARIETTA METAL PRODUCTS CORPORATION
MARIETTA, PENNA.

EXPERIENCE and SPECIALIZED TRAINING
is the Answer to the Needs
of the OIL HEATING INDUSTRY

Boston School of Advanced Oil Heat Training

For Experienced Oil Burner Men Only

A three-day concentrated course in specialized oil heating procedures necessary for the advanced engineering knowledge required to properly conduct and justify an oil burner Modernization Program.

Leading Engineers and companies in the oil burner field are closely cooperating with the course offered by this school. To the best of our knowledge no similar or equal course has ever been offered anywhere.

This course is recommended for the key engineering personnel of manufacturers, distributors, and dealers of oil heating equipment.

FOR FULL PARTICULARS WRITE TO:

Boston School of Advanced Oil Heat Training, Inc.
Manufacturers—Central National Bank Building, Lynn, Mass.

Attn.: Mr. Werner P. Pohle, Instructor in Charge

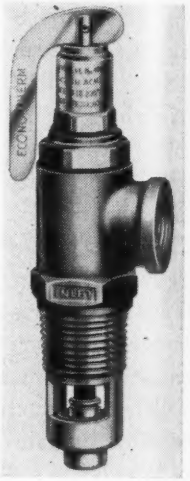
and on for high speed drilling of sheet metal. The right angle drive, additionally, permits drilling in inaccessible locations.

The extendable Super Speed bits feature patented, curved cutting blades that require less thrust and develop less torque. The complete kit includes ten bits of 5/8" to 2-9/16" diameter.

Made by: RCS Tool Sales Corp., Joliet, Ill.

Econo-Therm relief Valve for storage water Heaters

CASH-ACME'S Type "V" series Econo-Therm is designed to provide safety relief for hot water storage tanks. It is a temperature-actuated relief valve and offers complete and automatic protection.



The temperature-actuated mechanism is a patented thermostatic device, containing no fluids, that will withstand high temperatures without deterioration, and will not wear out with use. The device acts as a thermostat opening the valve when water reaches 208° and closing drip tight when the water has sufficiently cooled to eliminate the dangerous condition. The type "V" series relief valves are available in either the regular or stem type with or without try levers. Standard factory pressure relief setting is 125 lbs. Standard temperature setting 208°. Other settings may be specified when ordered.

Made by: The A. W. Cash Valve Mfg. Corp., Decatur 60, Ill.

Bendix Aviation produces continuous Viscometer

ULTRA-VISCOSON viscometer is now available for determining the viscosity of petroleum products and recording the readings by use of a probe and electronic computer. Viscosity is determined by the use of ultrasonic waves applied to the probe. The electronic computer serves to translate the probe output instantaneously into viscosity measurements on a recorder or controller. It operates on a continuous basis over extreme ranges of temperature and pressure.

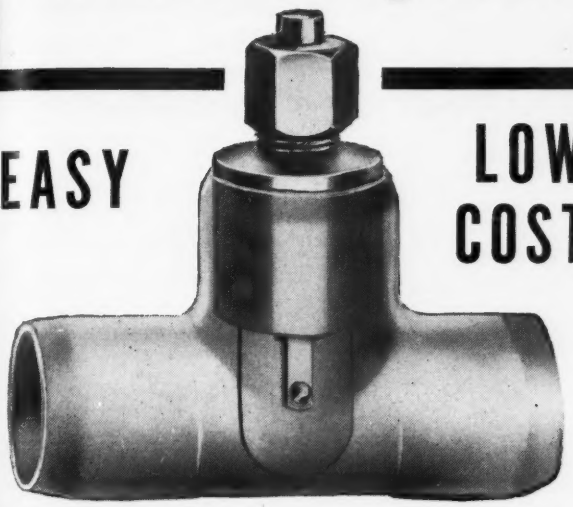
Automatic control of fueloil viscosity is a very practical application of the Ultra-Viscoson—Bristol equipment, whereby the efficiency of oilburning furnaces may be improved and constantly supervised. The Ultra-Viscoson continuously measures the fueloil viscosity directly in the oil line feeding the burners. The computer and Bristol recorder-controller vary the amount of preheat automatically to provide constant viscosity and therefore maximum efficiency of fuel combustion.

Made by: Cincinnati Division, Bendix Aviation Corp., 203 West Third St., Cincinnati 2, Ohio.

NOW! Convert standard tees into balancing valves!

EASY

LOW COST!

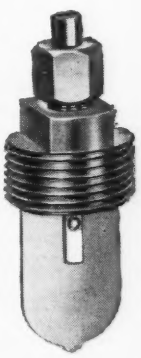


MAID-O'-MIST Adapter Units

Phantom view above shows how Maid-O'-Mist Adapter Unit makes any copper, bronze or cast iron tee into efficient balancing valve. Note there is no reduction of inside pipe diameter, an advantage which assures full free flow of water through the tee. This, plus low cost, permits use of additional balancing in hot water heating systems without preliminary planning. Precision made of brass and monel metal. Packed stem construction. Balancing adjustment requires only screwdriver.

◀ No. 14 for sweating or soldering into copper and bronze tees. Nominal pipe sizes ⅜", ½", ¾", 1".

▶ No. 15 for threading into cast iron tees. Sizes ½", ¾", 1", 1¼".



MANY USES

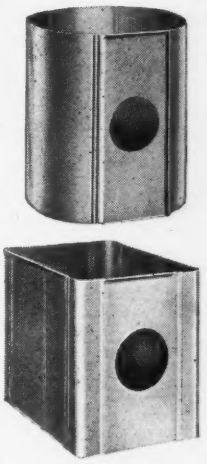
- For side outlet or run of tee.
- For return header
- For radiant header
- For baseboard radiators
- For convector radiators

MAID-O'-MIST INC.

AUTOMATIC HUMIDIFIERS FOR ALL TYPES OF HEATING SYSTEMS

3221 N. Pulaski Rd.
Chicago 41, Illinois

For Oil Conversions



your best bet is **PANELOX®** Heat-Resisting Stainless Steel

Combustion Chambers

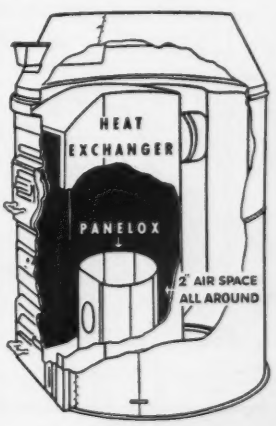
In every way, Panelox combustion chambers are your best bet for conversion from coal to oil. They greatly increase heating area of the heat exchanger; provide faster heat transfer, better heating performance, cleaner combustion; eliminate override for more uniform control; save fuel.

Panelox chambers are easy to install—interlocking panels slide together without tools. They save freight—weigh just a fraction of other types. No breakage in shipment or handling. Easy to stock—panels nest together in compact cartons. Sizes for every shape of installation.

NOTE: Proper installation is important. Old refractory or fire brick must be removed. There must be absolutely no insulation or backfill between Panelox chamber and heat exchanger or furnace casing. At least 2" space must be allowed between chamber and heat exchanger.

Interlocking panels—quadruple thick at seams for extra strength and rigidity.

Individual panels slide together to fit a wide range of chamber dimensions.



Heat from Panelox is absorbed directly into walls of heat exchanger for fast heat transfer, maximum efficiency.

Write today for full details, sizes, prices!

STEFCO STEEL COMPANY
Heating Equipment Div. • Michigan City, Ind.

Manufacturers' Activities

Gulf Oil elects Swensrud new chairman of the Board

SEVERAL CHANGES in the top management of the Gulf Oil Corp., Pittsburgh, Pa., were announced recently.

J. Frank Drake, after serving the past five years as chairman of the board and the previous 17 as president of the company, now assumes a less active role as chairman of the executive committee.

Sidney A. Swensrud, company president since 1948, has been elected chairman of the board and thus becomes the chief executive officer.

William K. Whiteford, formerly executive vice-president, has been elected president and will be chief administrative officer.

All other officers were re-elected at the meeting of the board of directors. In addition, F. C. W. Paton was named vice-president in charge of foreign marketing. Previously, he had served as general manager in charge of the company's marketing overseas.

Babcock & Wilcox announce number of personnel Changes

A NUMBER OF PERSONNEL CHANGES have been announced by The Babcock & Wilcox Co., New York 17, N. Y.

W. H. Rowand, chief engineer, boiler division, has been elected a vice-president of the company. He will continue to hold the post of divisional chief engineer.

J. E. Brinckerhoff, formerly sales manager, refractories division, has been named general manager of that division.

Other changes announced by Babcock & Wilcox in the refractories division were as follows:

C. L. Norton, Jr., formerly technical director, to executive assistant in charge of all development and engineering activities.

Carl Claus, formerly superintendent of the Augusta works, to executive assistant in charge of all sales and manufacturing operations. J. D. McCullough will continue as chief engineer in charge of engineering, service and application, with additional duties.

Mark J. Terman, formerly district manager of the Pittsburgh office, to sales manager. Bradford Hooper, who had been assistant to Norton, will succeed him as technical director. Royce K. Mach, formerly assistant to Claus, will succeed Claus as superintendent of the Augusta works.

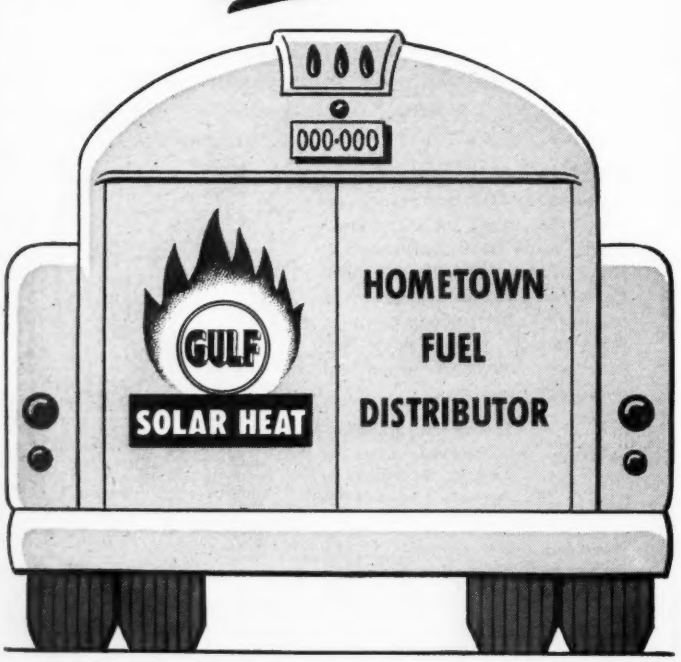
Several field staff Changes announced by Honeywell

SEVERAL field staff changes have been recently announced by Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.

Doug Ridley, formerly branch manager of the New Orleans sales has been promoted by the firm to regional commercial sales manager of the southwest region.

Hank Leichtenberg, former district manager at Madison, Wis., succeeds Ridley as branch manager at New Orleans.

THE BEST NAME... NEXT TO YOURS!



Team up for Progress... at a profit

GULF OIL CORPORATION
GULF REFINING COMPANY

OIL TANKS
for
Basement or Underground

Price domestic fuel oil storage tanks are manufactured to Underwriters specifications and bear Underwriters labels.

Obround Basement (Vertical or Horizontal)			Round Underground		
Cap. in Gals.	Gauge	Size	Cap. in Gals.	Gauge	Size
275	14 or 12	27 x 44 x 60	285	12	38 x 60
220	14 or 12	27 x 44 x 48	550	12	46 x 76
235	14 or 12	22 x 44 x 60	1000	10	52 x 110
275	12	22 x 44 x 72			

Write Today for Catalog and Prices

PRICE
FIREPLACE HEATER & TANK div.
PRICE NATIONAL CORPORATION
152 W. Austin Street, Buffalo N Y
237 Jackson Rd, Hatboro (Philadelphia) Pa

"Dodge topped everything else I tried"

. . . says **DAVID RICH**, *North End Coal Co., Inc., Bridgeport, Connecticut*

Why DODGE *"Job-Rated"* TRUCKS earn *plenty* for fuel-oil dealers

GREATER PAYLOAD CAPACITIES!

New 2½- through 4-ton Dodge *"Job-Rated"* trucks now shoulder up to 1000 pounds more payload! That's money-making news for the fuel-oil business! Bigger Dodge payload capacities mean more oil deliveries on *ONE* trip . . . less unproductive, "back and forth" mileage.

NEW POWER—MORE VALUE!

Big husky engines, from 100 to 171 horsepower . . . including 3 brand-new power plants . . . give Dodge trucks more muscle, more hustle. Other new features include increased piston displacements, greater engine-cooling capacities, advanced brakes and larger exhaust systems. Dodge-Tint glass and twin carburetion and exhaust systems are available. Drop in and meet your friendly Dodge dealer soon. He's a specialist at lowering hauling costs.

"I've been in the coal and fuel-oil business for 33 years and I've used a great many different trucks. But I didn't know how good a truck could be until we began to operate the Dodge.

"Residential deliveries call for good maneuverability. I bought the Dodge truck because it topped everything else I tried out in this respect. The big surprise came, however, after we really used the Dodge. These Dodge trucks are built to give the driver the best ride in the business.

"I'll string along with Dodge as long as they keep putting out trucks as good as my latest unit."

DODGE

"Job-Rated" TRUCKS

fuel oil & oilheat

Norm Rutgers, formerly a heating division salesman at Detroit, has been named branch manager at Des Moines, Ia., succeeding Wayne Peterson who becomes branch manager at Hartford. John Feigenbaum, formerly manager at Hartford, is taking on a special assignment there for the company's heating controls division.

Bill Stuewe, formerly a heating controls division salesman in Salt Lake City, has been appointed branch manager in Salt Lake, succeeding Eldon Richardson, who transferred to the company's executive offices in Minneapolis as home market supervisor.

Ed Bruder, regional office manager of the central region at Cleveland, has been transferred to New York in a similar capacity.

Junior Achievement Program sponsored by Iron Fireman

IRON FIREMAN MFG. CO., Cleveland, Ohio, in cooperation with other leading businesses in the Cleveland area, is sponsoring Junior Achievement of Greater Cleveland. Three advisers drawn from Iron Fireman, Carl Andree, Joe Torth and Louis Moenich, devote their time and experience in helping an individual company of high school students develop business management, sales and production know-how.

The Junior Achievement company meets once a week in a building fully equipped with power saws, spray guns, and other tools necessary for the manufacture of shadow boxes.

Each Junior Achievement company is organized by sale of stock. Sponsors give financial backing to the over-all organization. Individual companies elect their own student officers; advisers serve only as aides in training company officers and members. In Cleveland, Iron Fireman sponsorship of Junior Achievement is under the general direction of L. J. Cox, vice-president, public and employee relations.

A similar Junior Achievement company, manufacturing a different product, has been sponsored by Iron Fireman in its Portland, Ore., plant.

First sales training School of Summer held by Timken

IN THE FIRST of a series of sales training schools planned for this summer, 71 selected salesmen of heating equipment manufactured by Timken Silent Automatic Div., Timken-Detroit Axle Co., Jackson, Mich., have completed a week-long course at factory headquarters in Jackson.

Started last year, these sales training courses are designed to provide in concentrated form the necessary sales training for new retail salesmen of Timken dealers throughout the country.

"In the competitive period ahead, the need is not only for more salesmen but for better trained salesmen," R. M. Marberry, national sales manager of Timken Silent Automatic Products, emphasized in an opening address before the school. "That's why the company has, for the second year, agreed to underwrite a week's training for new salesmen selected by our dealers."

The school was conducted under the direction of Marberry, with Wil-

Smoother Operation...Longer Life for your FANS and PUMPS

LOVEJOY Double Flex FLEXIBLE COUPLINGS

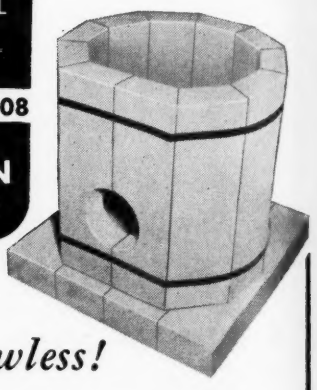
There is no surer way to get quiet, vibrationless operation . . . long, efficient performance than by installing *and standardizing* on Lovejoy Double Flex Flexible Couplings. Quickly installed. Easily serviced. Ideal for close-quarter applications.

Investigate why leading manufacturers specify Lovejoy jaws on fan hubs. Send today for bulletin and prices.

LOVEJOY FLEXIBLE COUPLING CO.

5012 W. LAKE ST. • CHICAGO 44, ILL.

GEM SINCE 1908 COMBUSTION CHAMBERS



Tough . . . and flawless!

GEM Combustion Chambers are die formed from hi-grade lightweight insulating materials and then kiln-fired to withstand 2600° F temperatures . . . that's why they're "tough" and give years of "flawless" performance. GEM's construction guarantees high combustion efficiency and excellent performance with high or low pressure burners.

The universal design of GEM Chambers enables fast and easy installations in any boiler or furnace. The scientific "float packaging" used assures maximum protection from breakage. Enjoy GEM's many advantages on your jobs—Write Today!

Special designs to meet furnace and boiler manufacturers specifications are our specialty. Inquiries are invited for prompt free estimates.

GEM CLAY FORMING CO.
Sebring, Ohio • Phone: 8-6141

Mfg's. of RADIANTS • BACKWALLS • STOVE LINERS
COMBUSTION CHAMBERS • INSULATING BRICK • ELEMENTS

liam Chappell, Carl Watres, K. O. Ralphs, Ed Haugen, Fred O'Malley, Harvey R. Cook and William Harrower, all associated with the Division, acting as instructors.

Courses of study included company history, product application, installation and service relationship to sales, types of heating and control systems, sizing conversion burners, heat loss calculations and sizing units, sizing water heaters, sales use of technical knowledge, sales features, salesroom demonstrations, working with architects and builders and advertising.

Reorganization of Standard's western division Announced

STANDARD OIL CO. (Indiana) has announced a number of changes in the organization of the company's western sales division, effective July 1.

Standard will consolidate its St. Joseph, Mo., sales field with adjacent fields to the east, south and west; establish a new central accounting office in Kansas City, Mo.; discontinue its sales accounting department in Wichita, Kans.; transfer warehouse distribution now handled from St. Joseph to the new Armourdale plant at Kansas City; and transfer its St. Joseph machine shop to Kansas City.

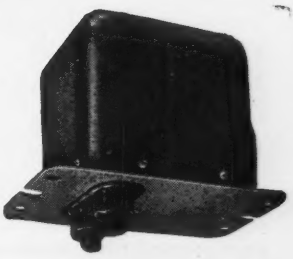
Bulk plants in the western part of the former St. Joseph field will now be supervised from Wichita, those in the east from St. Louis, Mo., and in the center from Kansas City. Oklahoma will be transferred from Kansas City to Wichita supervision.

The Lau A-10-3 Blower *as applied to the Hupp, 2-ton residential central air conditioning unit is being discussed by some of the salesmen and Lau engineering staff during a two-day national sales meeting held by The Lau Blower Co., Dayton, Ohio, recently. Left to right are: John Burrows, Lau's chief engineer; E. C. Wolford, C. C. Miley, L. W. Gillespie, J. B. Wallace, E. J. Humphrey (all salesmen), and Carl E. Wilken, development engineer.*

B. J. Harper, now acting manager at St. Joseph, will be added to the ex-

DONGAN TRANSFORMERS

STANDARD EQUIPMENT ON LEADING MAKES OF OIL BURNERS



DONGAN Transformers have for years been standard equipment on leading makes of oil-burners for one reason only—their dependability. It is therefore a make on which you can rely when performing service work requiring transformer replacement. Acquaint yourself with its many unusual construction features.

Voltages from 5,000 to 20,000
A variety of sizes and mountings

WRITE FOR Literature

Dongan Electric Manufacturing Co.
2981 Franklin Detroit 7, Mich.
"The Dongan Line Since 1909"

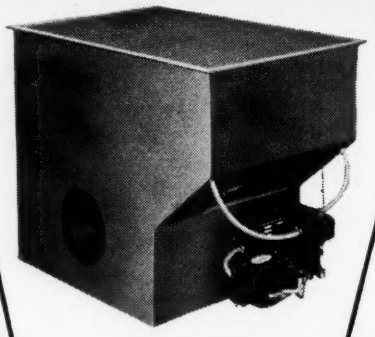
SELL KLEER-KLEEN THE FURNACE ALL AMERICA WANTS

First with the most important developments in the oil heating industry

FIRST with Easy Access Furnace
A Kleer-Kleen engineering feature making all parts readily accessible from floor level. Minimizes costly service and repairs.

FIRST with Electric Ignition
for mechanical draft equipment. Fully automatic operation at minimum cost.

FIRST with Commercial Standard
specifications accepted as a basis for production of most Kleer-Kleen floor furnaces.



Distributorships are available in some areas. Write for particulars.

NEW! *Easy Access* FLOOR FURNACE
MODEL E270-SG
So much heat - So little space
Here's the floor furnace that astonished the furnace industry! Designed for medium sized homes without basements, Model E270-SG supplies 70,350 Btu/hr. heat output...yet is only 29¾" in depth! No other furnace produces so much heat from so compact a case!
Listed and labeled by Underwriters' Laboratories, Inc.
EXCEEDS Commercial Standard Specifications
New Electric Ignition - Just Set it and Forget it!

KLEER-KLEEN MANUFACTURING CO.
140 ORCHARD AVENUE, HAYWARD, CALIFORNIA

panded Wichita sales field as assistant manager-reseller.

G-E's Heating and Cooling Dept. graduates 1,000 from Schools

AN ESTIMATED 1,000 students have been graduated from the Application Schools conducted by the Home Heating and Cooling Dept., General Electric Co., Bloomfield, N. J., when the current series ended May 21.

The school started March 6 at Bloomfield and graduated about 420 students before going on the road.

The tour included such cities as Louisville, Ky., Chicago, Ill., St. Louis and Kansas City, Mo., Minneapolis, Minn., Seattle, Wash., San Francisco, Calif., Dallas, Texas, New Orleans, La., Atlanta, Ga. and Cleveland, Ohio.

The school offered indoctrination in job figuring, Air-Wall layout and selection for GE oil and gas furnaces and residential air conditioners to distributors, dealers, servicemen and salesmen.

C. M. Toelaer, HHC supervisor of application engineering, was in charge.

Monogram distributes Booklet for listing phone Numbers

MONOGRAM PRODUCTS CO., INC., Philadelphia 4, Pa., has prepared "The Little Black Book" which is a wallet-size booklet, convenient for listing telephone numbers. Monogram is making this "Black Book" available to dealers and other industry people.

Mueller Climatrol announces new cooling design Manual

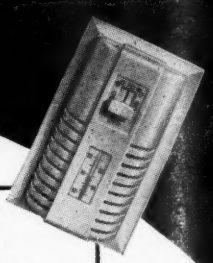
A COOLING DESIGN MANUAL has recently been released by the L. J. Mueller Furnace Co., Milwaukee, Wisc., for estimating and designing residential cooling installations.

The new Mueller Climatrol manual provides a simple method of cooling design for residential work without using complicated formulas. The manual has been prepared for use by dealers, builders and architects or anyone concerned with the laying out of residential cooling systems, written to compare as closely as possible with the accepted method of calculating heat loss, except that it is based on heat gain.

The simplicity of the new manual lies in the fact that heat gain calculations require basically the same considerations as heat loss calculations. The main difference between heat gain and heat loss calculations is that the effect of the sun in internal heat gains, which act as a safety factor for heating

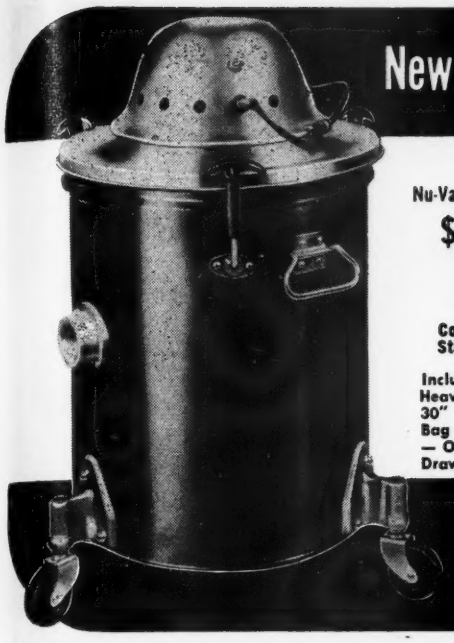
McCORKLE CONTROLS
for Vaporizing Oil Burners
Satisfy dealers . . . Satisfy customers

McCorkle Controls are backed by a record of 18 years of dependable service. Dealers endorse them, because their rugged simple construction reduces service calls to a minimum. Customers appreciate them for their dependable, accurate operation.



Write today for literature and specifications to cover your particular requirements.

D. H. McCORKLE CO.
Box E, Station A • Berkeley, California



New! Revolutionary **NU-VAC**© Furnace Cleaner

with new FLAMEPROOF Bag

EARNS EXTRA PROFITS FOR YOU!

Nu-Vac's new, revolutionary principles mean clean, fast easy operation...and that means extra profits to you.

$99.50

Complete Price with Standard Equipment

Includes . . . One 10 ft. Heavy Duty Hose — One 30" Crevice Tool — One Bag Cage with Filter Bag — One Paper Filter with Draw String.

NO DUST BAG TO EMPTY—Uses disposable paper filter flameproof bag, cannot clog suction. Bag is inside can, above dirt, while in operation. Dirt is bagged when can is turned upside down, after use.

DOUBLE PROTECTION—Outer cloth bag reinforced with wire frame surrounds paper bag. Costly bag blowouts impossible. No stopping to clean bag.

HOLDS ONE BUSHEL DIRT.

QUIET—No objectionable noisy whirr.

SUPER-SUCTION—5/7 H.P. Universal ball bearing motor with two-stage turbine fan gives 56" water lift.

LIGHTWEIGHT, REALLY MOBILE—Only 25 lbs. to roll or carry into cellars. Not 70 lbs.

FINISH—Blue Hammertone.

DEALERS NOTE—Several choice territories available. Write today for complete information.

Manufactured by

EMPIRE CHEMICAL PRODUCTS CO.

10 Longworth Street, Newark 2, N. J.

In Canada—KRESNO-STAMM, 506 Harbour St., Montreal 24.

equipment, must be considered in providing for summer cooling. Also, the success of summer air conditioning equipment involves the removal of moisture from the air in the conditioned space.

In the Climatrol manual there is a "step-by-step" design procedure. An explanation of each of the considerations for the steps in the procedure, and also the necessary tables for register, duct and equipment size, are contained in the manual.

Couplings Co. announces Move to larger Quarters in Chicago

COUPLINGS CO., Chicago 8, Ill., suppliers of brass fittings for copper tubing, has announced that it is moving to new and larger quarters located at 2205 W. Roosevelt Rd., Chicago. The new headquarters, the firm reports, affords more facilities for expediting order-filling and shipping. The company was formerly located at 55 E. 18th St., Chicago.

Gulf to honor Employees for ten years or more Service

DIAMOND AND RUBY service award emblems and engraved certificates will be awarded to 3,899 veteran employees in all of the various departments of the Gulf Oil Corp., Pittsburgh, Pa., this spring and early summer.

This makes a total of 18,283 active employees who have participated in the service awards program, or approximately 40% of Gulf's total working force.

Employees become eligible for service awards after completing 10 years' service, and for each five-year period thereafter.

Among the group to be honored this year will be 10 employees who have served 45 years each; 27 who have 40 years' service; 225 who have served 35 years, and 483 employees who have 30 years' service with Gulf. A total of 1,069 employees are entering the veteran group for the first time, having reached their first ten-year mark with the corporation.

Anderson literature on line type Hi-eF Purifiers

THE V. D. ANDERSON CO., Cleveland 2, Ohio, has issued new literature on its line type Hi-eF Purifiers. This eight-page folder, the manufacturer reports, tells how these mechanical separators save money for virtually every type of plant by cleaning up steam, vapor, compressed air and gases by removing 99% of dirt, solids, moisture, guck and other objectionable entrainment.

The units keep moisture and dirt out of paint spray equipment, air tools,

Use "CRESCENT PARTS" Service

SERVING THE ST. LOUIS TRADE AREA

Authorized Fuel Unit Service Station

"FACTORY REBUILT" Repair Exchange control service on all popular makes at regular manufacturers list prices and trade discounts.

STOKER AND OILBURNER PARTS

SEND US YOUR ORDERS OR INQUIRIES

CRESCENT PARTS AND EQUIPMENT CO., INC.

825-831 S. Boyle Avenue St. Louis, Missouri

East St. Louis, Illinois branch:
1140 St. Louis Avenue
East St. Louis, Illinois

chucks, and other pneumatic equipment, the manufacturer reports. Also, they remove water and oil from gas lines, as well as many other pipeline applications throughout the industry. Installation photos illustrate equipment arrangement and blueprint drawing shows piping layouts.

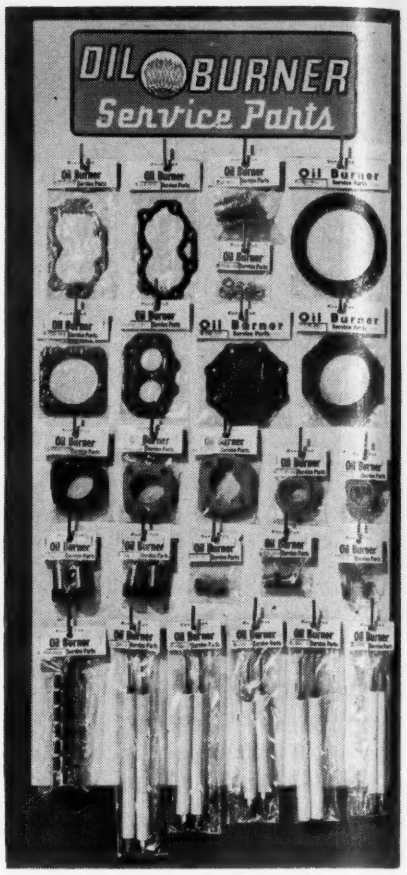
York-Shipley building Program progresses with new Plant

YORK-SHIPLEY, INC., York, Pa., has under construction its third new industrial plant which is part of its overall program to erect a new series of factory buildings which are being located just east of York. All manufacturing will be concentrated in these buildings when the project is completed.

Winston Company of Mass. moves to larger Quarters

WINSTON COMPANY OF MASS., Boston 18, Mass., has moved to larger quarters at 33 Bradston St. Formerly located in Dorchester, the Winston Company manufactures Masterflame oilburners, package boiler-burner units and Therma fin-tube baseboard.

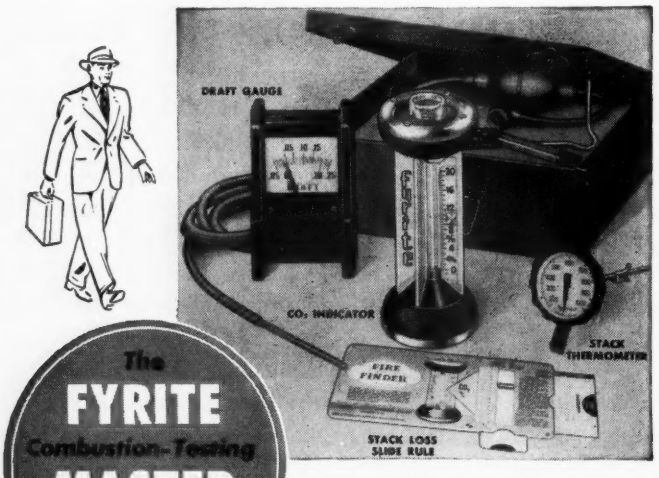
This self-service *display board, prepared by Hydrovalve Co., Brooklyn 3, N. Y., features Hydrovalve gaskets, electrodes, and other related essential oilburner service parts. The oilburner service parts display board is being featured at oilburner supply jobber houses throughout the country. The parts are packaged in factory-sealed cellophane bags and in quantities for economical purchasing.*



Triangle Insulation Co. named Distributor for Fiber Glass

TRIANGLE INSULATION CO., INC., Philadelphia 22, Pa., has been named a distributor in Philadelphia and South Jersey for Super-fine fiber glass manufactured by Libbey-Owens-Ford Glass Company, Toledo 3, Ohio.

Triangle Insulation, formed in 1942, does an extensive business in mechanical construction work and consulting



The FYRITE Combustion-Testing MASTER KIT

Helps You Build Profits and Prestige

Combustion-testing builds business in two ways. First, it boosts service profits because with instruments any service job can be done in less time and by less experienced men. Second, it brings in new equipment business by spotting fuel-wasting burners through a dramatic "fuel-saving" check-up which will convince even the most skeptical customer of the need for replacement or modernization.

Keying your sales and service to fuel conservation will work wonders for you. It will establish you as a "fuel-saving" expert and help you corner an even larger share of immediate and future sales in your community.

The MASTER KIT shown above will appeal particularly to those who want professional implements of highest quality and reliability, as well as of impressive display. The cost of the kit is very small compared to the sales and service profits it will bring you.

Ask your Jobber or Write for Bulletin 733

BACHARACH Industrial Instrument Co.

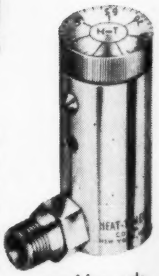
7301 PENN AVENUE • PITTSBURGH 8, PA.

add a "PLUS" to your heating installations . . . build good will

with HEAT-TIMER GUARANTEED AIR VALVES

HEAT-TIMER **THERMOVALVE**

makes it possible to dial for precise temperature desired in each room. Has built-in thermostat. Will work on any 1-pipe steam system without interfering with existing controls. Noiseless operation. Angle or straight shank. **List $3.95**



precision-made; long-life; brass, chromeplated.

HEAT-TIMER **VARIVALVE**

brings the heat quickly to "hard-to-heat" radiators, mains and risers of 1-pipe steam systems. This quick-vent valve has venting orifice, variable 0" to 5/16". Angle or straight shank. **List $3.45**

HEAT-TIMER CORP'N

657 Broadway, New York 10, AL 4-5380

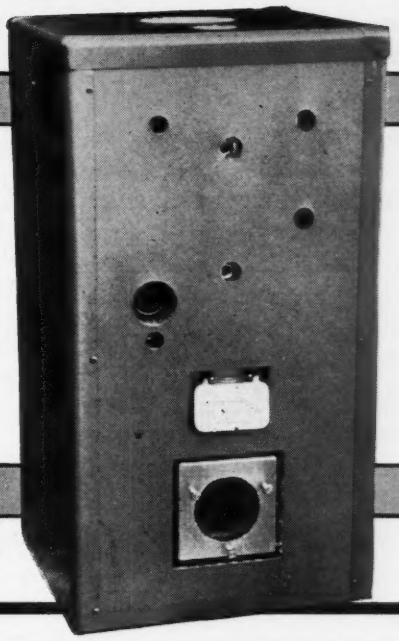
Mfrs. of HEAT-TIMER Electronic Controls, Thermovalves, Varivalves, Motorized Valves; Smoke-Eye Smoke Alarm; Fire-Chief Fire Alarm and other outstanding products.

the V-28

Newest Addition to the NEW YORKER Steel Boiler Family!

DESIGNED AND PRICED for today's small home. The attractive blue-and-gray heavy gauge steel jacket will dress up any utility room or basement. Ample domestic hot water furnished by the large (180 Gph) NEW YORKER tankless coil. All fittings are on the top and in the front for easy installation.

Send for prices and information NOW!



NEW YORKER STEEL BOILER CO. INC.
Colmar, Pennsylvania

engineering for heat, cold and sound insulation in industries.

"Corporate" Helicopter links eight Rockwell company Plants

A NEW SEVEN-PASSENGER S-55 Sikorsky Helicopter is helping the Rockwell Mfg. Co., Pittsburgh 8, Pa., solve its transportation problems between its main offices in Pittsburgh and seven plants within an approximate 200-mile radius.

Rockwell decided that a helicopter was the most practical method of transporting executives, staff members and manufacturing components required on an emergency basis between its facilities in western Pennsylvania and throughout the state of Ohio.

The helicopter's home base in Pittsburgh is located in a specially-marked section of the company's parking lot, barely a three-minute walk from the office of W. F. Rockwell, Jr., president of the firm. Heliports have been prepared in the parking lots of the seven other plants visited regularly by Rockwell representatives.

The S-55 Sikorsky helicopter, *owned by Rockwell Mfg. Co., Pittsburgh, Pa., is shown at its home base, the parking lot heliport immediately adjacent to the firm's Pittsburgh main offices and manufacturing plant. This ship is the commercial version of the Army H-19 and Marine HRS Helicopter, now in use for rescue and transport duty in Korea. The ship has a capacity of seven passengers plus crew.*

Here's how to **CUT YOUR CUSTOMERS' FUEL BILLS**

Always Install a PARAGON 700 Series 7-Day Calendar Time Switch

When you install a 700 Series Time Switch on a heating job, you insure economical operation — and customer satisfaction. For example, it's simple to set the dial to switch to a lower thermostat setting *automatically* Saturday noon, then switch back to the higher setting earlier than usual Monday. At the same time a regular switching schedule for night shutdown of the heating system can be maintained the rest of the week. You can accurately set operations from ON to OFF or from OFF to ON as close as 3 hours apart . . . at *different* hours each day if necessary . . . or you can omit any days desired. You can set it in advance for automatic control of a week's operations — yet make changes instantly when necessary! Send for complete details — now! Ask for bulletin No. FO-5207.

• fully AUTOMATIC • completely FLEXIBLE • instantly CHANGEABLE

Dial graduated in hours and half hours — days distinctly marked — day and night periods clearly separated. Available in 24, 115 and 230 volts; 25, 50 and 60 cycles. Prices as low as $36 list.

PARAGON ELECTRIC COMPANY TWO RIVERS, WISCONSIN

TWO RIVERS, WISCONSIN

WORLD'S LARGEST EXCLUSIVE MANUFACTURER OF TIME CONTROLS FOR ALL PURPOSES

Hold-Tite Valve Co. announces two new Appointments as Reps

HOLD-TITE VALVE MFG. CO., New York 36, N. Y., has announced the appointment of Frederick E. Bottiger, of New Haven, Conn., as its representative for the state of Connecticut and Rhode Island and the counties of Rensselaer, Dutchess and Columbia in New York State and Franklin, Hampshire, Hampden and Berkshire in Massachusetts.

Hold-Tite has also appointed Elbert N. Moncrief, of Cleveland 16, Ohio, as its representative to cover the entire state of Ohio and the Pittsburgh and Erie sections of Pennsylvania.

M-H adds 25 sales Engineers to Industrial Division Staff

TWENTY-FIVE SALES ENGINEERS were recently added to the field sales force of Industrial Div., Minneapolis-Honeywell Regulator Co., Philadelphia, Pa.

The new appointees, all recent graduates from the company's industrial instrument training school in Philadelphia, reflect the long-range expansion of the company's sales organization to meet the increased complexities of the firm's industrial marketing problems, J. A. Robinson, field sales manager said.

The new salesmen, who will be assigned to 20 cities in 16 different states are: John D. Lewis, New York, N. Y.; George H. Negley, East Orange, N. J.; Thomas L. Mogren, Syracuse, N. Y.; John E. Rattinger, Boston, Mass.; William H. Hockersmith, Harrisburg, Pa.; Jack Hopkins, Greenville; Lee H. Nelson, Knoxville, Tenn.; Frank E. Graf, Birmingham, Ala.; E. A. Spellerberg, Columbus, Ga.; Joseph T. Toifel and Howard P. Smith, Pittsburgh, Pa.; and Robert G. Wren, Pat J. Galabrese and William F. Yasdick, Chicago, Ill.

Also, Carroll J. Cheslousky and Richard D. Horbinski, Milwaukee, Wisc.; Harold L. Brandt, Des Moines, Ia.; Robert H. Waggener, Houston, Tex.; Stanley V. Preskitt, Dallas, Tex.; Leonard S. Hester, Kansas City, Mo.; Rodman E. Street, Denver, Colo.; Robert O. Hutchinson, Portland, Ore.; William T. Lisenby, Los Angeles, Calif.; and Larkin L. Blake and Theodore G. Lyston, San Francisco, Calif.

Consumer Booklet for local dealer Promotion

NATIONAL FUEL Conservation Co., Inc., White Plains, N. Y., is now publishing a magazine, available to all its dealers, which they in turn can use in their local promotion.

The small-size, 12-page, magazine will have imprinted on its front cover the name of the individual dealer as though it was his own magazine. The back cover will be reserved for the dealer's advertisement.

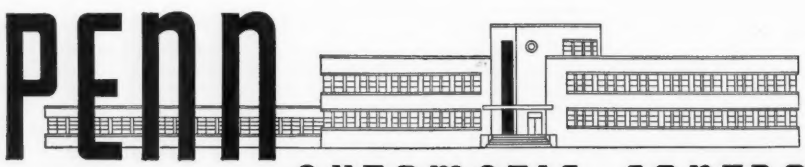
In each issue the inside front cover will be devoted to two products that can be sold by the dealer distributing the magazine. These two products will be of a nature that can be sold by any heating dealer.

National Fuel Conservation Co. will sell this magazine to dealers in quantity lots at prices much lower than the dealer would pay if he were to publish a similar type magazine by himself.

If you ever experienced HOT-n-COLD LIVING . . . and who hasn't . . . you'll know why more and more people *want automatic heat with* PENN CONTROLS.

Here's the reason. In PENN's room thermostat, there's a little wire that produces *heat anticipation* . . . the PENN-made magic that stops HOT-n-COLD LIVING. Automatically adjusting itself to outside temperatures, this thermostat quickly balances heat in-put with heat loss, *keeps indoor temperature within a half degree of selected level.* And that is real heating comfort!

Use this powerful sales point in selling automatic heat. You'll sell more, profit more! Mail coupon for FREE descriptive folders for handout or mailing to your prospects. **Penn Controls, Inc., Goshen, Indiana.** Export Division: 13 E. 40th Street, New York 16, N. Y., U. S. A. In Canada: Penn Controls, Limited, Toronto, Ontario.



AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, GAS APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

Homeowner's record Book is revised and condensed

PUBLICATION of the second edition of Recordabode, the homeowner's record book, has been announced. The book was created as a practical promotion medium for oilheating dealers to present to their customers who have purchased their own homes, and particularly a new home. The book provides him with a single volume to keep vital home records.

This edition of Recordabode has been redesigned to contain only such data as the average homeowner would be interested in compiling. Included in the contents are sections for taxes, insurance, improvements and utilities, the latter including fuel costs, and 14 other sections.

The book is full 8½" x 11" sheet size, available in red, green or brown cover, has 32 pages and 18 separate features. Space is provided for keeping records from 20 to 30 years. The dealer's name and address is imprinted on the cover of the book, and, if desired, inserts may be made in the front or adjacent to any section.

Recordabode is sold on a quantity basis to selected sponsors so that its cost unit cost is kept reasonably low. Sample copies are 50¢ each, obtainable from Jackson Publication, Inc., 305 East 46th St., New York 17, N. Y.

Literature on Vac-On Switch issued by Jaycon Associates

LITERATURE has been issued by Jaycon Associates, Minneapolis, Minn., covering in detail the specifications, applications and installation of the Vac-On Switch. The switch is a "watchman" device, engineered to shut off an electric or gasoline motor driven pump, or similar equipment, operating on limited liquid source or vacuum. Its purpose is to prevent breakdown due to dry operation or vacuum chamber leak.

The literature shows cutaway photos and detailed hook-up drawings of the switch, explains its operation and construction, lists model specifications and gives complete installation instructions for various typical applications.

Clayton & Lambert completes new pipe & fittings Catalog

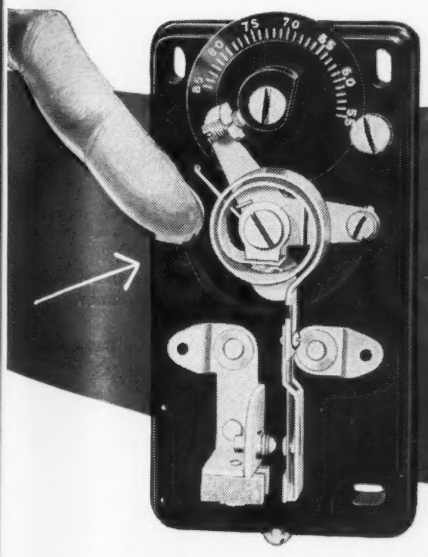
CLAYTON & LAMBERT MFG. CO., Louisville, Ky., has announced a new Lamneck Standardized Pipe and Fittings catalog, which groups pipe and fittings according to category of use in a heating system.

The catalog also gives sizes, weights and lists prices of all fittings, plus illustrations of seven types of heating systems. For quick and convenient reference there are several illustrations of sizing charts.

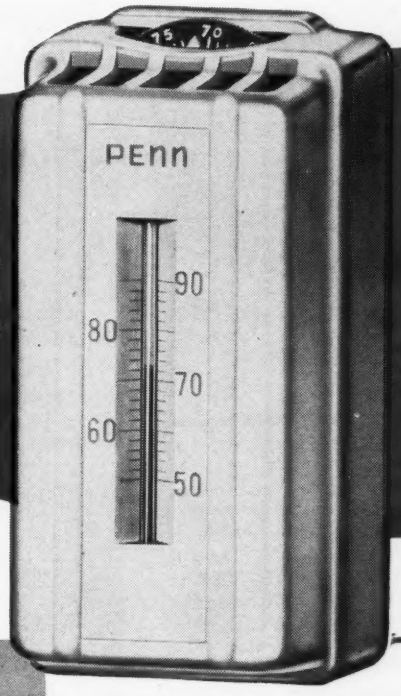
H. A. Thrush has Circular on full Line of water Circulators

A SIX-PAGE CIRCULAR, HC-352, released by H. A. Thrush & Co., Peru, Ind., is devoted to information on Thrush water circulators. Performance charts, capacity tables, dimensions and other specifications on the complete line of horizontal and vertical Thrush water circulators are shown.

Numerous drawings illustrate the various applications.



Interior showing heat-anticipating wire, snap-acting contacts, simple 2-wire design and sturdy construction.



FREE handout folders

JUST MAIL COUPON

Nationally advertised in
BETTER HOMES & GARDENS
AMERICAN HOME
NEWSWEEK

Penn Controls, Inc., Goshen, Indiana

Please send me _____ copies of your FREE folder for handout or mailing.

Firm Name_____

Address_____

City_____ Zone_____ State_____

Individual's Name_____
(Please print or typewrite)

Readers' Problems

Q. I request your opinion on how to handle a very serious service problem.

We have had service calls involving ignition failure on start-up, coinciding with safety lockout failure. As you know, the combination loads a heating unit with fueloil. A small accumulation of oil can be burned out without much trouble. If, however, the householder is away and the burner runs for seven hours (this happened) or more before the trouble is detected, it presents a tough problem.

Where this happened, the burner fired a round cast-iron coal boiler in a three tenement house. The burner had run steadily for seven hours with no ignition and by the time this was discovered the combustion chamber was saturated, the boiler flue passages were dripping wet, the chimney was soaked from top to bottom. Unfortunately the serviceman simply started firing to burn out the oil, and the resulting fire was almost a catastrophe. Luckily the chimney was excellent and did not leak anywhere up through the building. We were able to control the ensuing fire. You can see, however, that such a situation coupled with other conditions, a bad chimney for example, would be dangerous.

I am most interested to get your opinion and any other authoritative opinion on how to cope with this problem.

S. F., Andover, Mass.

A. Since you have encountered several times the coincidence of ignition failure and failure of safety controls to stop the burner properly when they should, you can well understand that other dealers have encountered the same difficulty. We know precisely what you mean! Your problem is well worded!

First, of course, whereas it would be silly for you to aim to do everything possible, on a literal basis, to avoid the trouble you describe, you should aim to put all your customers' burners in good condition for safe operation. Doing everything possible to avoid such trouble would be silly because it would include such things as providing double ignition and two independent safety control systems for every burner. While this has been done for millionaires who have had bad trouble and wanted to avoid repetition of the trouble at any cost, ordinarily it is not within reason.

As the first item, then, use sensible and reasonable steps to put the burners in condition for safe operation. If a safety control panel is not of a make and model you know will act dependably in case of ignition failure or flame failure, point this out to the owner in writing and do your best to replace it. That gives you some protection, should serious trouble occur later. Do the same

IT'S GOT PATCO AIR-BASEBOARD

and it's just terrific the way JOBBERS and OIL HEATING DEALERS have taken it over.

and why not —

JOBBERS —— you've only two units to stock, 1. PATCO AIR-BASEBOARD, 2. PATCO CONNECTOR. For the OIL HEATING DEALER — PATCO has a HOW TO — INSTALLATION MANUAL. Shows how easy it is to layout and install a PATCO job (manual's FREE, write for it). One installation will convince you why PATCO AIR-BASEBOARD is an easier, better heating system . . . Consider these — no fabricated duct work, uses small diameter round pipe. PATCO CONNECTOR eliminates major floor cutting. Nails to studs or finished wall. Only 4" high, matches standard wood baseboard. LOCK-MATIC room adjustment of no blast air control and many other features.

anyone can install PATCO AIR-BASEBOARD — a better warm air system,

PATCO AIR-BASEBOARD

231 N. BREAD STREET, PHILADELPHIA 6, PA.

No other furnace gives you both

CIRCULATING WARM AIR HEAT
PLUS CONTROLLED DOMESTIC HOT WATER SUPPLY

Metropac JUNIOR — for smaller homes

Metropac DELUXE — for larger residences also provides circulating cool air in summer.

For details and information about available franchises, write Dept. F-16.

METROMATIC MFG. CO., EVERETT 49, MASS.

LITE·CAST
COMBUSTION CHAMBERS
QUICK HEAT LONG LIFE

Close to ½ million installations are testimony to the sales making features of MONOGRAM COMBUSTION CHAMBERS
All shapes and sizes.
Our literature will assist you in your work.
Write for it today

MONOGRAM PRODUCTS CO., INC.
731 NORTH 35th STREET, PHILADELPHIA 4, PA.

thing with respect to safety control panels which are obsolete, in poor condition, poorly installed, etc. Concentrate on winding up with an excellent, modern, safe control panel on every one of the installations you service.

As your men go around on service calls and yearly check-ups, make certain that they test the safety control on every installation they see. They should test it thoroughly for its action in shutting off the burner in case of ignition failure or flame failure. Every control panel should be so tested at least once a year. Twice a year is better.

Checking for excellent condition of the entire ignition system logically goes along with all this. Consider putting on a campaign to put all your customers' ignition systems in condition equal to new. Your men will use many electrode assemblies, high-tension cables, porcelain insulators, etc. The entire wiring and all the controls of each installation should be checked over thoroughly. The objective is to locate and eliminate defects that may affect safe operation. Certain experts find a voltmeter test necessary for a thorough search for control and wiring defects. They look for a voltage drop while the burner motor starts and comes up to speed.

The trouble you describe usually occurs on jobs in poor condition. To avoid it, try hard to put every one of your installations in excellent condition. Owners who will not pay for improvements needed to make their burners safe should receive notice from you in writing that their equipment is unsafe. Stress the point that the owner, not you, is responsible for the unsafe condition of the equipment.

Starting up an oil-soaked installation usually involves hazards. These can be minimized only by taking considerable time, which is costly of course. First, do a thoroughly good job of mopping up as much fueloil as possible. Use old rags. Mopping up often takes two hours. Try to keep things under control by burning-out part of the installation at a time, starting with the chimney. Remove the smokepipe, burn a few pieces of newspaper in the base of the chimney, and hope for the best. For safety, you should have fire extinguishers and plenty of salt on hand, and though this may be difficult to arrange you should have a man at the top of the chimney ready to pour chemicals and salt into it if the chimney fire tends to get out of control.

Be ready to block off the top of the chimney with watersoaked canvas or something similar. Be ready to block off the bottom openings first to prevent air from entering. Having fired the chimney, wait until the chimney fire burns itself out. Let the chimney cool off for at least two hours. Then set fire to the oil in the flue passages of the furnace or boiler, with the smokepipe in place of course. Put burning newspaper into the upper part of the flue passages to start out, and keep the flue and firing doors open to keep cool the lower part of the furnace or boiler. When you find this safe, permit the fire to extend downwards gradually, and finally wind up firing the combustion chamber.

For maximum safety, have three or

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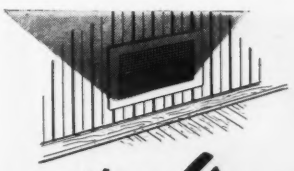

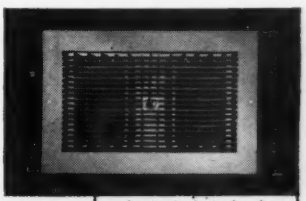

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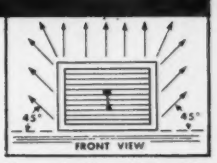
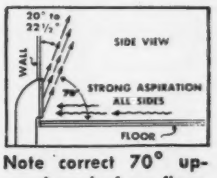


Lima "45" Wall Diffuser air pattern starts at 45° from floor and extends over 90° spread.



Note correct 70° upward angle from floor. The 20-22½° angle away from wall eliminates streaking.

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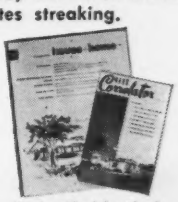

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four men on the job when you do all this, provide them with high-powered fire extinguishers suitable for such work, and notify the fire chief beforehand that you are starting a serious operation that may develop into something interesting to his department.

We can give you this assurance, however. We have had first-hand experience with these things. Never did anything serious develop when all of these precautions were taken. Putting heat on again often was delayed half a day, and the labor costs ran high. But the work was done professionally enough to please the most requiring safety authorities, and in every instance things worked out smoothly.

Q. A ceiling-hung furnace has chimney down-draft trouble when large exhaust blowers in nearby paint-spray booths are running. Then air comes down the chimney instead of fumes going up, and fumes come out of the ceiling-hung furnace. Can trouble be ended by using a motor-blower unit to "supercharge" the oilburner blower? Take outside air into the new, additional blower through 20 ft. run of 12" smokepipe, and blow this air into intake of oilburner blower?

O. A. L., Manchester, Ia.

A. Your proposed remedy would not end the chimney down-draft you describe, thus would not end the trouble. Such trouble has been ended by installing a draft inducer to draw the products of combustion from the furnace and force them out through the chimney. An inducer or similar arrangement can keep the over-fire pressure in the furnace properly negative compared to the air pressure in the room. Feeding vast amounts of outside air into the room (more air than is removed by the exhaust blowers in the paint-spray booths) is another effective remedy. Large fans or blowers are used for this. Because of the high capacity involved and the need to preheat the outside air to at least room temperature during the heating season, this arrangement usually is costly. It provides important advantages, however, of fresh air, adequate ventilation, and assisting the functioning of the already-installed exhaust blowers.

Q. Many times the correct chimney size and height to be used for oil-fired units presents quite a problem. Most of the published data on chimney size and height is considerably out of reason for such buildings as one-story schools heated by high-capacity oil-fired units.

I would appreciate it very much if you could give me any information on chimney sizes and heights for oil-fired units of different gph capacities, or some formula to use in determining chimney sizes. Whatever published data or references you could give me on this subject would be very much appreciated.

B. S. G., Columbus, Ohio

A. The published data to which you refer are out of reason mainly because they may lead to chimneys 50 to 70 ft. high for large one-story buildings, and no one with an eye for beauty wants a stack that high for such a building. Yet, and this is most important, the best of the widely-used tables on chimney areas and heights are based on excellent formulae and practical experience. They are based on the very formulae you must use if you want to

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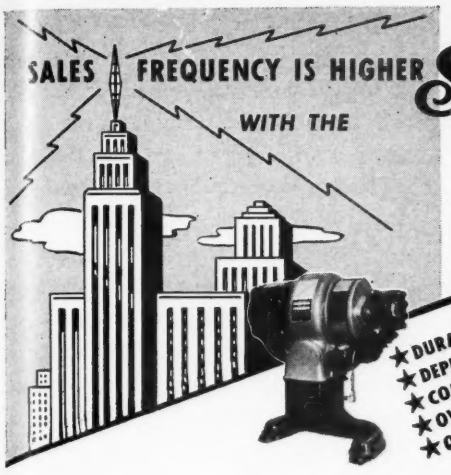

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A leader in oil heating for 33 years.

SUNDSTRAND ENGINEERING CO., Rockford, Illinois

start at scratch preparing your own tables.

You are aiming to specify lower stacks than these widely-used tables indicate should be used. Lower stacks may steer you straight into the troubles of insufficient draft for typical oil-fired furnaces and boilers.

True, the popular tables provide sufficient draft for typical furnaces and boilers, and you may get by using lower stacks on jobs certain to be equipped with furnaces and boilers which (a) need over-fire draft lower than commonly is needed, and (b) have less draft-drop from combustion space to smoke outlet than have typical furnaces and boilers. As a corollary to that thought, it is possible to design oil-fired furnaces and boilers suitable for exceptionally low stacks. You are in a position to put that idea to work.

Here's how one consulting engineer handles such a problem. Having ascertained that 12 gph will be fired in a school boiler room, using two 6.0 gph burners, he translates this to Btu unit of about 1,680,000 per hour. (Obtained by multiplying 140,000 Btu's per gallon of oil times the 12 gph.)

Working on the basis that each square inch of flue area can handle 7,000 Btu's per hour, he divides 1,680,000 by 7,000 and decides 240 sq. in. of flue is minimum for the job. Whereas he uses the factor of a maximum of 7,000 Btu's per hour per square inch of flue, other engineers may use lower factors, of course.

Checking widely-used tables, he finds a stack height of 55 ft. suits the ideas of many chimney experts, for this job corresponds to a gross steam-boiler load of about 5,000 sq. ft. Now he decides he can do one of three things:

1. Obtain assuredly-good natural-draft performance by building the high stack, 55 ft. high from its smoke-pipe connection to the top;

2. Take a big chance and install a lower stack, say 40 ft. high—knowing he's asking for trouble and will not be able to explain his way out of it easily if it comes;

3. Install no stack at all, but use a modern draft inducer that discharges through a stub in the boiler-room or furnace-room ceiling.

The third answer is being used more and more. We believe that it is the proper answer for many of your problems, and suggest you check on the many advantages of motorized draft and draft inducers.

Q. I'm just an extra-thorough burner serviceman with no college education or technical training excepting for what I picked up in after-hour studying, but with years of reading your magazine and manufacturers' litera-

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ture I come to the conclusion I do much better at handling domestic oilheating problems than most professional heating engineers. My fancy zone-control jobs really work. The ones they plan! Well, they don't work!

Please tell me, just why do domestic one-pipe steam jobs need that great allowance of 40% or even 50% for piping and pick-up, whereas a small allowance of perhaps 15% or 20% for P & P actually works out nicely for force-flow hot water?

N. W. S., Utica, N. Y.

A. To use your own words for it, actually it works out nicely to use the 40% to 50% allowance for the small steam plants. Here's why. The burner firing such a plant can be expected to run perhaps 12 to 20 minutes at a time, when heat is needed. Each time it runs, it should cause the boiler to generate enough steam to insure the proper heating of every radiator in the system. It won't generate that much steam, however, unless you've figured the 40% to 50% P & P allowance. Cut down that allowance greatly, and in effect you under-fire the load on the boiler. Heat distribution to the radiators may be poor, even though you use most modern radiator vent valves that permit you to balance the venting. Also the boiler will take too long to fill all the radiators with steam when this is needed on coldest mornings.

Q. This boiler, old but in excellent condition, has flues typical for old cast-iron coal boilers, not too good and not too bad. Boiler has no label. At the grate level, is 26" wide and 44" long inside. How many gallons-per-hour can boiler be fired?

I. F. W., Quincy, Ill.

A. A good thumb rule is: Determine the grate area in square feet, and multiply it by 60% to determine the gph rate. On that basis, a suitable maximum firing rate for this boiler is about 5.0 gph. This figure was obtained by multiplying 44 by 26, dividing by 144, and ascertaining 60% of the quotient.

Q. Suppose I can bank on actual efficiency above 60% from this old coal boiler being converted to oil, for I guess the stack temperature will be below 750° and I'll get at least 9% CO_2 with no chimney smoke. Steam mains and returns are not exceptionally long and are passably well insulated. On those premises, how much cast-iron standing radiation load can be carried by firing boiler at 5.50 gph?

I. F. W., Quincy, Ill.

A. Under the job conditions you describe, each gallon-per-hour fired can carry 300 to 350 sq. ft. standing steam radiation load. Thus the maximum standing-steam load for this boiler fired at 5.50 gph would be from 1,650 to 1,925 sq. ft. Use the 1,650 figure, if you want to play safe.

Q. How to cope with continual waterlogging of a basement-located closed expansion tank in a new forced-circulation hot water system? Can tank pinholes or porosity be fixed with tank in place?

E. C. J., Bellwood, Ill.

A. You should use as a closed expansion tank only a tank made for that purpose. If you've done that and a new tank definitely has pinholes or is porous, replace it to end the trouble at

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once. We have never heard of an on-the-job method of sealing leaks in such a tank.

Q. A wealthy customer gets disgusted at non-operation of his limed-up humidifier in top of furnace, orders me to make it work. (1) What should I do to it? (2) How do I keep it out of lime trouble from then on?

D. S. I., Lakewood, Ohio

A. (1) Replace it if it's old; the customer can afford this. If he balks, get help from a chemical expert, use acid cautiously to remove all lime, and if necessary replace defective parts.

(2) Best remedy is to sell the customer a water softener, so he feeds the humidifier soft water instead of troublesome hard water. If he balks at this, (a) try to sell him an excellent humidifier especially designed to give little trouble using hard water, (b) if the float-valve is giving the most trouble, see if you can arrange to install it remote from the furnace, so that it will remain cool. Send your problem to some of the best humidifier manufacturers you know.

How much Storage?

(*Begins on page 49*)

fueloil marketers now have storage for No. 2 oil of 100,000 gallons or larger. This 7% of marketers also has 55% of the total tankage. This primary supplier further stated that 15% of its marketers have storage for No. 2 oil of 50,000 gallons or upward and they account for 2/3 of total sales.

There is considerable feeling among the committee members that little benefit would result from efforts to encourage the smallest marketers, those with less than 50,000 gallons of storage capacity, to add tankage beyond their normal working needs. Normal working needs would be defined as sufficient capacity to accept their typical receipts, be they tank car, barge or transport, plus an emergency capacity representing about two weeks sales at the peak of the season. In other words this small marketer would be protected with storage capacity of around 10% of his annual sales.

The important problem then is to encourage an increase in local bulk capacity on the part of the more significant marketers.

It must, of course, be anticipated that where the marketer will carry a substantial amount of actual seasonal storage beyond his working needs and where this storage saves money for the primary supplier, the marketer will seek some economic incentive. Naturally it is not the function of this committee to explore this phase of the problem which is for individual negotiation between the supplying company and its marketer.

One primary supplier pointed out that there is no great benefit in having the marketers store a lot of oil in the summer unless they also store it past the fall peak of November 1. This marketer went so far as to say that his company wasn't seriously concerned about the amount of oil in bulkplants through the summer months, but was very much concerned over having these neighborhood tanks well filled through the period from September 15 through December 1.

Primary storage, of course, keeps building up in anticipation of the win-

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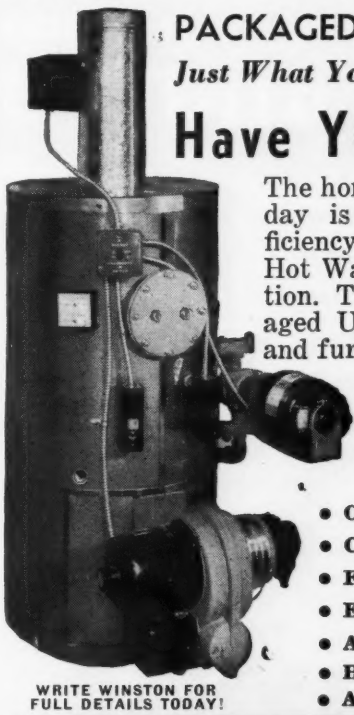

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ter need and normally hits a peak in early November. Obviously then the greatest need of this supplier for local storage is to help the industry get over that peak.

Another large primary supplier finds that his company's date of greatest concern over field storage of heating oil is on July 1. In this company's marketing of oil products, that is the date where the crisis must be met.

The experience of these two companies demonstrates that there is little uniformity in suppliers' needs for seasonal secondary storage. Individual negotiation is obviously the answer.

A sidelight to this discussion is the possibility of greatly increasing seasonal storage at the consumer level. About three-fourths of the present six million No. 2 oil consumers have 275 gallon tanks. At an average cost of only $68 an additional tank of the same size can be installed by present consumers.

In theory, this could provide an additional 30 million barrels of seasonal storage. This, of course, opens up a whole new subject that will perhaps be explored in later work.

Research helps Dealer

(Begins on page 55)

technicians call it, is used to test the way families live in different arrangements and sizes of rooms.

On the outside the test structure looks like almost any one-story house of contemporary design. However, the interior partitions and outside walls are free of roof-weight and therefore are readily movable. This permits size, shape and location of all rooms to be changed at will. The bathtub is on wheels while the other fixtures are on wall panels which can be moved. The entire house can be made larger or smaller in a few hours by two men with the simplest tools.

The dwelling is used to test families' reactions to the different arrangements and sizes of rooms, and as a research project is aimed at developing space requirements, or standards, for modern family living. Results are expected to help the housing industry build the greatest amount of needed space into homes with minimum waste.

Oilheating Trends

(Begins on page 12)

will be stronger in their markets this year than last and that includes every section of the country except, of course, the Pacific Northwest where only the Portland area has gas competition.

TRUCK RENTALS: Because we have recently heard of occasional fueloil distributors who had all of their trucks on a lease rather than an ownership basis we checked that point this month. A little over 5% of the reporting fueloil men lease all of their trucks, and a less number leases a few of them. The marketers were then asked if they knew of companies in their markets who were leasing all their trucks. One-third of the reporting fueloil men replied in the affirmative. This group apparently had reference to the 5% previously mentioned who say that their own companies lease all their trucks. This opens up an interesting subject for considerable further exploration.

The fueloil men were next asked their estimate of how many marketers

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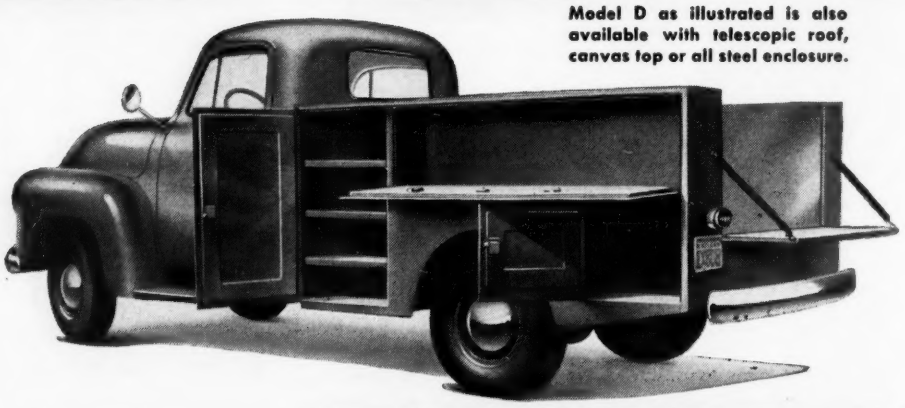

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- used on both single and double stage fuel units
- easily installed in shop or field without pump disassembly, gaskets or pipe dope required

For use on all one and two pipe jobs. See your jobber or write direct.

Specify size: ¼" or ⅜".

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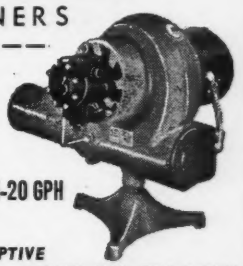

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. . . . Oilheating Trends

in their communities had set up separate corporations to own and operate their trucks. There was little evidence of this practice in Midwest and Far West but in the New England and Mid-Atlantic areas a little more than one-fourth of the companies follow this practice. There appeared to be several possible benefits in the opinion of those who do this but the principal advantage seems to be tax. Three out of five of the companies express the opinion that having a separate corporation to own and operate the trucks would bring about a substantial income tax saving.

FUELOIL STOCKS: Stocks of distillate fuels at refineries, terminals or in transit east of the Rockies on May 9 were 51,890,000 barrels. On the corresponding date last year there was no report due to the strike. It is obvious, however, from the figures before and after the strike gap that the stocks were about 44,000,000 barrels.

At this season the stock levels are not particularly important but they will become so in another month.

DEALER COMMENTS: Typical comments on questions of the month are these: "Speaking of gas the local utility allows a very good price on an oilburner it can trade in and then sells this as used equipment at a price far below normal" . . . "The fueloil dealer is a trucker; if he cannot run a fleet successfully he will find his profit seriously reduced by hiring this done for him" . . . "Gas should give us practically no competition in St. Louis this year" . . . "Leasing trucks gives us an operating cost advantage and a reduction in capital requirements" . . . "Because of the labor situation and the rough competition the small dealers may eventually fold up; I suggest you look into the advisability of the small dealer arranging for larger companies to deliver his fueloil on a commission basis" . . . "We have enough mechanics but badly need sales engineers and estimators" . . . "The season seems to be getting started slowly" . . . "We expect terrific competition from gas because the local utility will install with nothing down and $5 a month for five years" . . . "We are just about out of new installations within the city limits. We are selling some gas equipment because gas is 50% cheaper (Kansas) and then we sell the used oilburners in rural areas" . . . "Gas in Lansing is on a release basis and only a few permits are released each year so gas competition is no problem" . . . "I have two servicemen owning and operating their own trucks and they handle all my cleaning and service calls; I bill all charges and charge the men 10% of the call for handling; this puts the men in business for themselves while they are responsible to me for good work" . . . "What arrangements can be made to train new oilburner men in suburban areas where schools are not offering courses and school budgets do not permit this addition to the curriculum?" . . . "We rent three tractors, own the trailers and the arrangement is satisfactory" . . . "I carry 'loss of earning' insurance that may result from layoffs from my men"

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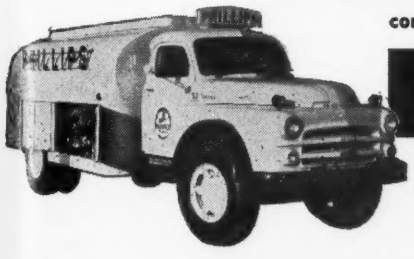

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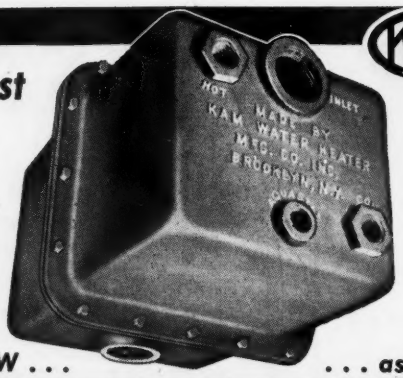

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F. G. Hill has been named Kansas City regional manager, Chrysler Airtemp Sales Corp., Dayton 1, Ohio. Hill, a district manager in the Kansas City sales office for the past three years, replaces T. U. Cowger who recently resigned. A native of Dallas, Texas, Hill was associated with the sales department of the Dallas Lone Star Gas Company from 1930 to 1948. Prior to joining Airtemp, Hill was with the western regional sales group of the Advance Furnace Company.

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DEGREE DAY TABLES

ONE MONTH ONLY — April						SEASON TO DATE — Sept. to April			
Normal	1952	1953	Percent Change*		Normal	1952	1953	Percent Change*
549	436	544	— 9.0	Albany	6366	6426	6033	— 5.2
173	143	192	+ 10.9	Atlanta	2967	2666	2751	— 7.3
347	267	311	— 10.4	Baltimore	4410	3899	3695	— 16.2
538	432	475	— 11.7	Boston	5605	5182	4964	— 11.4
672	496	625	— 6.9	Buffalo	6454	6105	5816	— 9.8
536	424	544	+ 1.5	Chicago	5946	5810	5524	— 7.1
374	289	425	+ 13.6	Cincinnati	4861	4279	4264	— 12.3
558	450	567	+ 1.6	Cleveland	5839	5347	5001	— 14.4
95	125	124	+ 30.5	Dallas	2364	2028	2150	— 9.1
523	466	636	+ 21.6	Denver	5513	5491	4947	— 10.3
449	448	601	+ 33.9	Des Moines	6191	6611	6186	— 0.8
569	463	607	+ 6.7	Detroit	6250	6007	5646	— 9.7
575	468	615	+ 6.9	Grand Rapids	6392	6176	5859	— 8.4
525	412	467	— 11.0	Hartford	5821	5521	5233	— 10.1
643	525	748	+ 16.3	Helena	7191	8226	6767	— 5.9
38	40	29	— 23.7	Houston	1321	1006	1402	+ 6.1
414	359	479	+ 15.7	Indianapolis	5304	4970	4783	— 9.8
327	334	431	+ 31.8	Kansas City	4865	4965	4529	— 6.9
159	129	180	+ 13.2	Los Angeles	1259	1442	1221	— 3.0
302	274	338	+ 11.9	Louisville	4329	4121	3971	— 8.3
621	512	672	+ 8.2	Milwaukee	6615	6833	6362	— 3.8
580	475	715	+ 23.2	Minneapolis	7643	7919	7461	— 2.4
32	24	28	— 12.5	New Orleans	1207	933	1001	— 17.1
467	334	417	— 10.7	New York	5094	4495	4349	— 14.6
414	426	551	+ 33.1	Omaha	5922	6414	5929	+ .1
378	291	345	— 8.7	Philadelphia	4605	4166	4006	— 13.0
448	337	436	— 2.6	Pittsburgh	5257	4674	4486	— 14.7
668	629	620	— 7.1	Portland, Me.	6753	6830	6360	— 5.8
370	314	394	+ 6.5	Portland, Ore.	3973	4036	3468	— 12.7
543	416	456	— 16.0	Providence	5701	5027	4797	— 15.9
290	273	303	+ 4.5	Roanoke, Va.	4928	4002	3846	— 4.5
305	318	385	+ 26.2	St. Louis	4514	4460	4129	— 8.5
450	362	507	+ 12.7	Salt Lake City	5335	5669	4577	— 14.2
269	282	364	+ 33.3	San Francisco	2317	2587	2356	+ 1.7
829	679	841	+ 1.4	Sault Ste. Marie	8416	8299	7763	— 7.8
440	379	434	— 1.4	Seattle	4256	4086	3642	— 16.8
534	476	608	+ 13.9	Toledo	5976	5921	5627	— 5.8
345	259	276	— 20.0	Washington	4478	3873	3726	— 16.8

*Compared with normal.